W. G. Irwin,

April, 1930.

WHEAT

WHEAT

By

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PREFACE

WHEAT, according to the dictionary, is an important food grain. It may be that in Britain, or in the Canadian diet, but in Western Canada it is the lifeblood of commerce and industry, the very plasm of society. For this reason we call this book simply *Wheat,* for in it we do not attempt to deal with wheat as a plant to be sown and harvested, nor as a grain to be made into flour, nor even as an important part of the national commerce. For clarity, and since we hope that the book will go to many readers who are somewhat vague about summer-fallowing, or hedging, or the combine, we have touched on every stage in the production and marketing of the crop, but only that through it all we may try to weave what seems to us the vital thread of wheat as the means by which we are making a country out of what was but a few years ago the Great Lone Land.

Much of the political struggle which our system of government makes necessary, many bitter controversies between great economic groups, and not a little of social development of all Canada have had their origin in the stream of "hard red vitreous kernels" which annually pours forth from Western Canada. In consequence, to write even a short book about wheat is to deal with many controversial matters. We have done so very cheerfully, and have expressed our opinions on them with a sufficiency of courage if somewhat a lack of discretion. To those who read a chap-

ter and conclude from it that we are propagandists for the dealers in wheat, or for the millers, or for the Pool, or for the railways, or for some political group, let us suggest that they read the rest of the book before condemning it and its authors. We know that we cannot please everyone, so we do not try to please anyone, but solely to tell what our conclusions are from our studies of a great and complex subject, undertaken in the most scientific manner of which we are capable.

It is not a statistical work, although figures must be used to make the picture. It is not an ambitious literary effort, although we have tried to make it readable. It is, as far as we can make it, unprejudiced, with the important and admitted exception that we can see no interest in all Canada as well worth guarding as that of the farmer, for from his efforts we must build a country. We have even in that case tried to deal honestly, and have not hesitated to say where we think the farmer has been wrong.

We have tried to avoid technical wording, especially in economic discussion. We have adopted certain set phrases such as "Western Canada" to mean the three Provinces of Manitoba, Saskatchewan and Alberta; "the Pool" to mean the three Provincial Wheat Pools and their central selling bureau, when they operate as a whole; "grain-grower", "farmer" or "producer" to mean the average Prairie dweller who operates an ordinary Prairie farm.

The preparation of a book of this type has involved constant appeals to others for help and advice, and never without success. The book, as we say, traverses many a battle-ground of controversy, and for that reason we cannot say that this authority read and approved this chapter, or that distinguished scientist

another chapter, for such references might seem to commit our friends to general endorsement of views that they do not hold. Therefore we must limit our acknowledgments to saying that officials of several Dominion and Provincial Departments of Government, of several public, semi-public and private bodies, members of the staffs of several universities, and a number of specialists in many branches of science and of industry, scattered over many countries, have by word of mouth, or in writing, given us such help that without it the book could not have been written.

We have drawn from our own study the conclusion that wheat-growing in Western Canada is an industry based on the labour of a healthy and wholesome community; that it is the foundation of our national transportation and commercial activities; that it has had many difficulties and will have more, but is not going to fail; and that the wheat-growers are people well-fitted to help in making this a great nation. If even a few of our readers are aided to the same conclusions, we shall feel fully rewarded.

THE AUTHORS.

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A CURRENT NOTE

THIS book was finished in the closing days of 1929. Since then wheat and its problems have been the chief subject of public discussion in Canada. The most extreme views have been expressed by responsible journals, and by men prominent in various walks of life.

Wheat, we have been told, is going to fabulously high prices; wheat is a drug on the markets of the world; the Canadian farmer has asserted his power; he has lost the only hope he ever had of selling his crop; the Pool has shown its power; the Pool has wrecked the whole economic life of the country.

The authors suggest that nothing unexpected has happened. They see the situation as a normal outcome of certain factors, already described in this volume. The world wheat crop of 1928 was abnormally large, and it will require at least two years of ordinary yields to permit its market effect to be overcome. The world crop of 1929 was abnormally small, and speculators have been too eager to push prices up. The Pool wisely refused to sell in a price-war with the Argentine Republic, but appears to have sold wheat whenever it could do so at a fair price. The Canadian carryover is large, but is steadily dwindling. The wheat at this moment in Canada is all certain to be sold, as also the crop of 1930, that of 1931 and so *ad infinitum*. The recorded history of the world goes back some thousands of years, and in that time no wheat has been accumulated by mankind.

The alarmists who argue that the crop could have

been sold last year at much higher prices than those now current are wrong. Had an attempt been made to press the sale of the Canadian crop, the market would have fallen to very low levels—with the Argentine grain still always below Canadian. That would have been disastrous.

Those who suggest that the farmers will now all leave the Pool on this ground are probably wrong. The farmers of Western Canada are in the main intelligent and loyal, and the Pool is in close touch with its members. If its members believe in the honesty and good judgment of its management they will not shirk difficulties.

The price at which the remainder of the Canadian crop will be sold will be determined by the respective skill and power of seller and buyer, and by general commodity price levels. A financial stringency for which the wheat situation is not wholly responsible has caused these levels to be lowered this winter, but not very seriously.

The effect of the wheat situation on the general business conditions of the country is important—but we should also remember the effect of a probably temporary weakening of business activity in many countries on the wheat market in Canada.

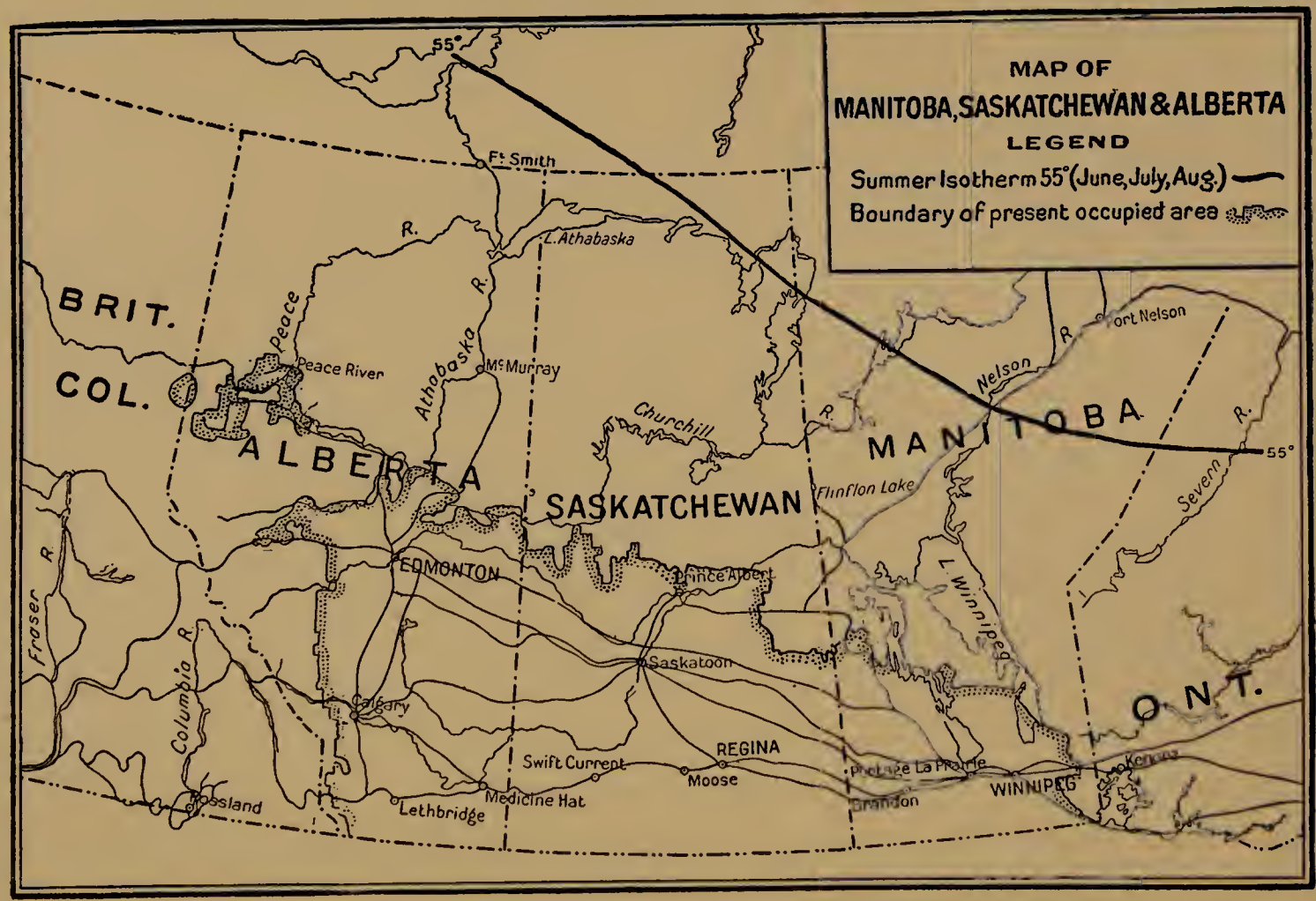
The transportation companies have suffered a serious shrinkage of business, but the wheat they did not move in 1929 they will move in 1930. The whole exportable surplus from Canada has so far been exported every year, and seems likely to be exported in the future.

The forecasts of a fatal disaster to the Pool do not seem soundly based. Those who will lose money as a result of the situation are as usual those who bought wheat for more than they can get for it.

The Pool and the other agencies which have delayed the sale of the crop to the extent of refusing to sell at distress prices are in a better position than the authors of this book to defend their course. All that we can say is that, after a careful re-reading of our manuscript in the light of events since we wrote it, we see no reason to alter or modify the statements contained in it.

February 17th, 1930.

THE AUTHORS.


MAP OF
MANITOBA, SASKATCHEWAN & ALBERTA
LEGEND
Summer Isotherm 55° (June, July, Aug.)
Boundary of present occupied area
55°
Ft. Smith
L. Athabaska
R.
Peace
Athabaska
R.
BRIT.
COL.
Peace River
Mc Murray
Churchill
R.
Nelson
R.
Port Nelson
MANITOBA
55°
Severn
R.
ALBERTA
SASKATCHEWAN
Flinflon Lake
EDMONTON
Prince Albert
L. Winnipeg
Fraser R.
Columbia R.
Saskatoon
Calgary
ONT.
REGINA
Swift Current
Moose
Portage La Prairie
Kenora
WINNIPEG
Brandon
Medicine Hat
Lethbridge
Fernie

WHEAT

CHAPTER I

THE WHEAT COUNTRY

THE present main occupied area of the three Prairie Provinces is included in an irregular generally triangular figure, based on the international boundary. It commences in the East almost at the extreme South-eastern point of Manitoba, from which the Northern limit of the figure slopes sharply North, and then turns West, almost at the Southern end of Lake Winnipeg; it then runs almost due Northwest, crossing Lake Winnipegosis about its Southern end, and follows this general direction to a point about one hundred miles North of Prince Albert; it then curves South, and continues roughly West to the Alberta line, where it turns more to the North, curves around the city of Edmonton about two hundred miles to the North, and turns in a curve to the South until it meets the irregular line of the foothills of the Rocky Mountains, which it follows to the international boundary somewhat West of Lethbridge.

In addition, there is an important district generally known as that of the Peace River, lying somewhat to the North and West of Edmonton, and isolated from the main area, in which settlement and agriculture have progressed enough to enable us to class it as part of the settled area.

In a general way the country slopes toward the East and the North, the altitudes of some important points being:

Lethbridge	2,982	ft. above sea level
Calgary	3,438	" " " "
Edmonton	2,185	" " " "
Medicine Hat	2,181	" " " "
North Battleford	1,687	" " " "
Moose Jaw	1,779	" " " "
Regina	1,896	" " " "
Saskatoon	1,589	" " " "
Prince Albert	1,413	" " " "
Portage la Prairie	858	" " " "
Brandon	1,204	" " " "
Winnipeg	772	" " " "

Geologically the country is the result of one of the great periods of glaciation—an ice age—during which great sheets of ice advanced from the North, scouring down mountains, and filling valleys, to retreat later before the coming of a milder climate, depositing as they went the sand, gravel and finely ground stone which they had accumulated, and leaving lakes to dry up into clay plains.

Topographically it is on the whole smoothly rolling, treeless in the South, merging into clumps of scattered brush further North, and ending in the North in well-timbered park-like country. It is not watered very generously, but is crossed by several large rivers, running in general much below the surrounding countryside, and has a large number of lakes.

Man has gridironed it with railway lines, which cover its area, to the extent of a mileage of 17,000. He has provided it with cities—perhaps the most completely equipped urban communities of their size in Canada—and with a great number of smaller communities ranging from isolated groups of houses to

highly modern villages with complete systems of public services of all kinds.

The area which we have described contains about 245,000 square miles, an urban population of 760,000 and about 250,000 farms, ranging in size from four acres to thousands of acres and with a rural population of 1,320,000.

A recent official estimate of the Government of Canada is that the three Provinces contain 157,000,000 acres of land fit for agriculture, of which 89,000,000 acres are now occupied, 35,000,000 acres ploughed or otherwise under cultivation, and 22,000,000 acres sown to wheat in recent years. 50,000,000 acres of land are available for homesteading.

Careful studies of soil types are tending to limit these estimates. The country is not—as seems to be a general impression in other countries and even in Eastern Canada—a great plain of altogether fertile land uniform in type. It is a patchwork of areas of differing soil types. As will be seen, it is largely a soil created by the deposit of residues left by retreating glaciers, or by ancient lakes formed by retreating glaciers, and like all such soils, is extremely variable in type. The whole is on a huge scale, and in consequence a patch of clay may cover the area of a European country, or a line of sand dunes obliterate what might be several counties. It is impossible at present even to estimate the relative proportions of the various soil types, but it can safely be said that the proportion of land which must be regarded as suited for the economical production of cereal grains on a one-crop basis, even for a few years, has been exaggerated in the past. This question is discussed more fully in the final chapter.

The soils of the heavier types may be so rich that many years must elapse before even a continued process of "wheat-mining" could reduce them to a condition where artificial fertilization, or a change in the type of agriculture would be necessary to permit profitable returns per acre, while lighter soils are in many cases already at the point where one-crop grain-growing is economically impossible.

In addition, many areas in which reserves of plant food are still very large may, by the rapid destruction of organic matter due to summer-fallowing, be very susceptible to soil-drifting, even to a point where one-crop wheat-growing is impossible as a paying industry. These points are discussed in more detail elsewhere, and are mentioned here only to show the unwisdom of the often made assumption that every acre of level land in the three Prairie Provinces is capable of adding to the production of wheat on the present basis. Indeed it is now unquestioned that whole districts once settled by men who planned to grow wheat have to be converted to other types of farming or abandoned.

To describe the climate of an area as vast as the one which we are discussing is impossible without the assembling of numbers of tables and of maps. We must limit ourselves to the statements that it is a typical continental climate, of extreme heat in summer and extreme cold in winter; that in summer such temperatures as 107 degrees have been recorded in Manitoba and Saskatchewan, and 90-100 in Alberta; that in winter the thermometer frequently falls to 50 degrees below zero or lower; that the summer temperature is very variable—from freezing to extremely hot; that the spring is cold until the end of April, but that after that in many years the country plunges at

once into summer; that late frosts may occur in early summer, and early frosts in August; that in many areas occasional years have had frost in every month; that the autumns are normally long, and pleasant, changing suddenly to winter; and that in Alberta and Western Saskatchewan the warm wind known as the "chinook" makes the winter climate most variable.

The advantages of such a climate are its bracing and invigorating qualities, and the unusual proportion of sunshine, due both to comparatively cloudless skies, and also to the altitude. The disadvantages are extreme cold for a short part of the year, and high winds which are hot in summer and accentuate the effect of the cold in winter.

The precipitation is such as to cause the area to be listed as "subhumid". Averages for certain places are as follows:

Place	Average Annual Moisture	Highest	Lowest
Edmonton	12.49 ins.	17.75 ins.	6.28 ins.
Medicine Hat	12.69 ins.	22.28 ins.	6.72 ins.
Qu'Appelle	19.33 ins.	27.19 ins.	10.14 ins.
Prince Albert	15.88 ins.	29.88 ins.	9.25 ins.
Winnipeg	20.02 ins.	28.40 ins.	13.76 ins.

These observations cover a period of forty years.

Hail, destructive in its effect on growing crops, provides an economic danger in some districts. Authoritative figures of loss from this cause are not available, but it runs very high in bad years. A country such as this must be described as a veritable empire of soil resources, in a climate which makes life strenuous, but healthy. The white races, in their westward march across North America, were bound to open it to settlement, and to replace the buffalo and the antelope with

domestic animals, to plough the rich and virgin soil, and to seek to establish homes where the only occupants had been nomads. Had it been approached when Quebec was settled, or even when the Loyalists entered Ontario, it might have been slowly won to farms of the older type, self-sustaining economic units, which would in time tend to create centres of exchange and other services, ultimately to grow into towns and cities.

The Prairie Provinces however lay isolated. Quebec had been opened through the great channel of the St. Lawrence, which brings sea-borne commerce to its very heart. Ontario was the natural refuge of the emigrants who preferred to abandon their homes in what are now the Eastern United States rather than to acquiesce in a change of government. The West however lay beyond a great region of rock and swamp that was not to be tamed to agriculture, and men knew of it only as the Great Lone Land. It might have been tapped as the steady flow of occupation and settlement spread over the Western plains of the United States, but the political division of English-speaking North America prevented that.

In the interval between the settlement of Ontario and the building of the Canadian Pacific Railway, however, the whole type of society had changed, and the industrial revolution which originated in Britain had altered the economic function of agriculture. Where it had been the normal form of society to be based on a countryside whose needs of services might support towns or cities, society was now to consist of towns and cities searching the world for areas from which cheap foodstuffs might be drawn, and which might provide markets for manufactures.

Slowly at first, but then with unprecedented rapidity, it dawned on the world that here lay such an area. Industrial civilization had created mechanical transportation, and men with what at the time seemed greater courage than good sense, had thrown a line of railway across the Prairies.

The teeming cities of Britain could consume the products of the new land as fast as they were won from the soil.

It is interesting to speculate on the changed history of the West had its settlement been left to progress by the slower stages of older communities, or if its location and type had been such that its first settlers could find ample markets for all classes of farm products. As it was, its opening coincided with, and was possibly to some extent responsible for an era in world history which was one of exploitation of natural wealth on a tremendous scale. Population in occidental countries was growing rapidly; society was becoming highly specialized in type; transportation—if the West was to be provided with its facilities—must have bulk to move.

The West was too far away from great cities to be able to furnish a great assortment of perishable products; its climate was against the production of many commodities which have become staple in the agriculture of other areas.

The type of its population was not rural, but urban. It included many men who were true farmers by training or instinct, and many of its most successful settlers followed the practices of their former homes, never engaged in the production of grain for sale, and stuck to dairying and other types of mixed farming. Many, however, of the newcomers came to the West fresh

from cities, and sought quicker and simpler methods of making a living from the soil. Many—the great majority—came unprovided with capital, and unable to finance much in the way of equipment and buildings. Grain growing is an ideal method of opening up a country, and of producing wealth in the shortest and most direct fashion, other development to emerge later.

In addition, the soil and climate proved ideally adapted to the production of grain of unparalleled quality, and Manitoba wheat soon displaced that of the Northern United States as the standard of cereal excellence.

The first settlers found the country harsh in climate and unattractive in aspect. Trees were absent either as additions to the scenery or as the source of building material. Water was not to be found in the abundance typical of many of the lands from which they came. The high winds parched them in summer and chilled them in winter. The extreme cold was appalling.

Prairie country, however, has a peculiar fascination that cannot be denied. The traveller from Eastern Canada, as the scrub bush of Eastern Manitoba opens out to show the Prairie, or the voyager, who sees the plains rolling into infinite distance beyond the lower foothills as his train emerges from the Western mountains, feels it. Prairie sunshine shames that of Italy; Prairie sunrise and sundown are flawless in beauty. The sea of verdure in the spring, and even the bare brown roll of the country into the distance when all is over with the year, are marvels of beauty—not stippled in, but splashed on with a titanic brush.

The heat of summer never oppresses, and the dreaded cold of winter turns out to be mitigated by the dryness of the air.

In a short time it was proved that this was a country in which men and women could be content; in which they could enjoy life to the full, as well as in some older, milder and more gentle land.

As they settled themselves in the new country it became even more certain that this was a place for the growing of wheat. The soil proved even more fertile than they had believed. Wheat produced large crops with a minimum of cultivation, and even with a rainfall so short that it appeared hopeless drought to strangers. It was good wheat. Elevators, railways, marketing arrangements, all the machinery of handling wheat was perfected. Banks arrived, ready to furnish money to finance the production of a crop which is not perishable and which is as staple in the world's commerce as any commodity can be.

New varieties, including the famous Marquis, were perfected. The price of wheat climbed slowly but steadily up. Wheat was the basic product. It was a wheat country.

Experience has proved that the pioneer was right. Nature still takes a hand in the production of the crop. A glance at the figures of acreage sown and their yield will show how much at the mercy of the weather the wheat-grower still is.

Acreage in millions of acres, production in millions of bushels, yield in bushels per acre.

	Manitoba			Saskatchewan			Alberta		
Year	Acreage	Yield per Acre	Production	Acreage	Yield per Acre	Production	Acreage	Yield per Acre	Production
1914	3.4	15.5	52.5	6.0	12.4	74.6	1.0	15.3	15.9
1915	3.7	26.4	96.7	8.5	25.2	214.8	2.1	31.1	66.5
1919	2.9	14.3	41.0	10.6	8.5	90.0	2.9	12.1	34.6
1920	2.7	13.9	37.5	10.1	11.2	113.1	4.1	20.5	83.4
1922	3.1	19.3	60.1	12.3	20.2	250.2	5.8	11.4	65.7
1924	2.5	16.9	41.5	13.0	10.2	132.9	5.6	11.0	61.3
1928	2.7	19.7	52.4	13.8	22.0	303.0	6.7	23.2	156.0

The spring may be moist and warm, and then turn to a drought so complete and sustained as to be incredible to those who do not know the country. The most abundant field may in a few minutes be swept by hail which utterly wipes out the crop. In the later summer frost again impends, and the wheat-grower goes to bed at night without the least means of knowing whether he will be hundreds of dollars poorer in the morning. A snowstorm in September may blanket the still standing crop, and rain after harvest is commenced spoils it in the stook. In some districts soil-drifting may blow the seed out of the earth or ruin a young crop.

Other types of agriculture increase, and technical experts warn the farmer against dependence on wheat. It will ultimately sap the soil—in some areas has already done so. It is economically risky, not only from natural reasons, but by changes in markets which may have their origin in events thousands of miles away. In the years since the Prairies were opened to settlement wheat prices have varied greatly. How greatly, and how independently of acreages sown or of size of yield will be shown by the following figures:

Year	Acreage	Yield		Value of Crop
1914	9,320,600	140,500,000	bushels	$174,000,000
1915	11,777,700	341,000,000	"	280,500,000
1920	17,418,241	243,750,000	"	391,000,000
1921	22,540,589	283,350,000	"	227,000,000
1924	22,055,710	262,000,000	"	320,000,000
1925	20,789,790	395,500,000	"	488,000,000

The campaign for a change goes on and succeeds moderately. It has been proved that other forms of agriculture will pay if properly commenced and

developed. The following table shows that the Prairie farmer believes that.

Year	Acres Grain	Acres—Roots, Potatoes, Fodder Corn and Hay
1910	13,001,748	409,857
1916	23,879,507	431,766
1922	34,326,247	950,584
1929	36,541,465	1,313,000

From these figures we can see how, despite the great increase in acreage devoted annually to grain, mixed farming is growing even more rapidly in proportion.

So far, however, the Prairie farmer remains primarily a wheat-grower.

It is a hard country—judged by the standards of some others. It has a harsh climate. It demands much toil. It is still bare, despite the millions of trees set out by farmers around their homesteads, and the natural increase in trees now that the plains are no longer swept by an endless series of prairie fires. It is not moist enough in climate, nor mild enough, to suit those who want an easy life. It is a country in which wheat-growing is a great gamble. It grows the best wheat in the world, and contributes more than any other country to the world's commerce in the world's great foodstuff.

CHAPTER II

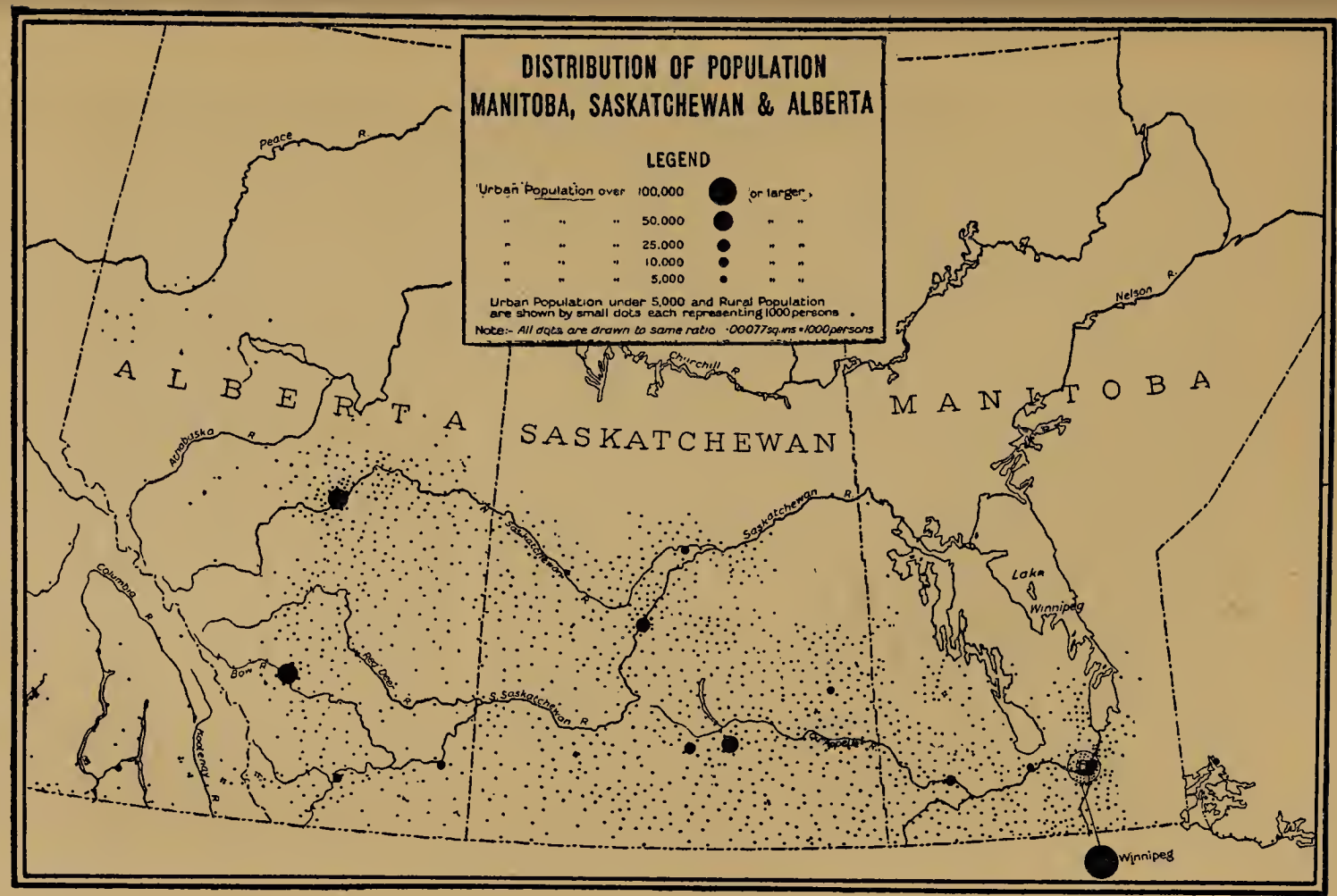
THE WHEAT GROWERS

THE country which we have described is one fitted for a hardy and virile people. Its taming, its cultivation, its provision with the amenities of life was a task in which only men and women of more than average courage and resource would desire to share or would be able to survive.

We are not attempting a history of the West, so we may commence this description of its people and of the social forces which have influenced them by saying that the coming of the first transcontinental railway found a country sparsely occupied by pioneers who seem today lost in the vast expanse. There was some organized settlement in the Red River Valley of Manitoba, and small nuclei at other points, but less than seventy thousand people in what are now the three Provinces.

The adoption of the policy of granting homesteads to settlers free of charge stimulated immigration, and a flood of newcomers entered the country, from Eastern Canada, the United States and Europe. Population increased very rapidly, the census figures being 1881—62,260; 1891—152,506; 1901—419,512; 1911—1,328,121; 1921—1,956,082, and 1926—2,067,402.

There can be no doubt that the dominating influence in shaping the social structure of this mass of people was that of the settlers from Eastern Canada. Natur-


DISTRIBUTION OF POPULATION
MANITOBA, SASKATCHEWAN & ALBERTA
LEGEND
Urban Population over 100,000 (or larger)
" " " 50,000 " "
" " " 25,000 " "
" " " 10,000 " "
" " " 5,000 " "
Urban Population under 5,000 and Rural Population are shown by small dots each representing 1000 persons
Note:- All dots are drawn to same ratio ·00077 sq.ins = 1000 persons
ALBERTA
SASKATCHEWAN
MANITOBA
Peace R.
Athabaska R.
Columbia R.
Bow R.
Red Deer R.
Kootenay R.
N. Saskatchewan R.
S. Saskatchewan R.
Saskatchewan R.
Churchill R.
Nelson R.
Lake Winnipeg
Winnipeg

ally they determined the form of government; they brought what might well be described as the conservative democracy for which Canada is noted; they brought the theory that education should be compulsory and free, and that the state should provide and control it even to the university; and they brought a definition of "Canadianism" such as exists in older Canada.

They brought also two items of incalculable value—a profound and abiding faith in the connection of Canada with the rest of the British Empire, and a truly British belief in law and order, in the controlled and disciplined liberty of the individual, entirely co-ordinated with the general needs of society, which is the great contribution of the British peoples to the history of civilization.

To them was added a large proportion of men and women of all classes of society from the British Isles, who reinforced their efforts in this direction, with the result that Western Canada has always been noted as a land where on the very frontier of civilization, peace, order and the right of the individual to undisturbed possession of personal and property rights have been established at all times.

The great influx of other Europeans and of settlers of European origin from the United States has to some extent diluted the original stock, and indeed fears are commonly expressed that there is danger of older ideals being lost. It would be unwise to enter here into the controversy aroused on this point, but it is essential to consider the situation as it exists. Without attempting an ethnographical survey, we may tabulate the present racial origin of the people of the three Provinces in such a way as to give a fairly accurate picture, using for our classifications those which seem

to be in the minds of most of those who discuss the subject.

POPULATION OF THE PRAIRIE PROVINCES: CENSUS OF 1921

Racial Origins	Population	Per cent. of Total
English, Scotch, Welsh and Irish	1,103,228	56.4
French	103,707	5.3
Russian, Ukrainian, Czechs, "Austrian"	232,629	11.9
Belgian, Danish, Dutch, German, Icelandic, Norwegian, Swedish, Swiss	321,050	16.4
Indians	41,340	2.1
Other races	154,128	7.9
Total	1,956,082	100.0

Now it is not our intention to attempt a valuation of these groups in their order of qualification for citizenship of Canada. We have merely divided them so as to separate those of British extraction, those of French—almost wholly French-Canadians—those who are of Central European—chiefly Slavic—origin, those who belong to the generally accepted Nordic races of Northwestern Europe, and the rest. The 2.1 per cent. of Indians the most convinced believer in the necessity of limiting further racial admixture cannot object to, as they were here in the first place; to protest against there being 5.3 per cent. of French-Canadians in any portion of a country which is thirty per cent. of that race, the country of Georges-Etienne Cartier and Wilfrid Laurier, would be ridiculous. There are few to question the racial desirability of the group including the Germans and Scandinavians. Therefore, any idea that Western Canada is in danger of foreign domination must be based up to the present on the presence there of 11.9 per cent. of generally Slavic immigrants from Central Europe plus 7.9 per cent. of "other races".

It is not within the scope of this work to deal with the future policy of the country with regard to immigration, except as it may affect the production of wheat; it is, however, proper to show that foreign immigration in the past has not reached such an extent as to seriously modify our political or social ideals, nor the trend of Western social development.

Another point much discussed in Eastern Canada and in Great Britain is the supposed "Americanization" of the West. It would be idle to deny that thought in Western Canada tends to follow in many respects that of neighbouring portions of the United States. While we have insisted on the dominant effect on Western Canada social development of the original migration from Eastern Canada and that from Great Britain, the part played in Western development by those who have crossed the international boundary to seek new homes is not to be forgotten. Not a few of the leaders in every sphere of activity have been among them, but nothing is farther from the truth than to suggest that they are here as a part of a system of "peaceful penetration". They have, on the contrary, been distinguished by their willingness to throw themselves into the life of their new country, and to assist in developing not only its material resources but its national spirit.

Any tendency for the Prairies to agree with Dakota or Wisconsin rather than with Ontario or Quebec is exactly as much a sign of their "Americanization" as would be the natural tendency of Eastern Canada to think much as do the Eastern United States. Inevitably, cultural growth on both sides of the boundary must be affected by natural surroundings as well as by artificial frontiers; inevitably it will be ever difficult

to distinguish a Maritime Canadian from a New Englander, a native of Windsor from one of Detroit, or a native-born son of Vancouver from his neighbour in Seattle. That this simple fact has been perverted into the whole theory of the "Americanization" of Western Canada is a regrettable incident among many similar.

Now what are these Western Canadians like? In what ways do they differ from other Canadians? What are their special qualities? In the first place a very genuine democracy—not a resentment against social inequalities, but a profound faith in the right of each individual to be judged on his own merits and not on those of his forbears or social connections. It is a matter of experience in the West, not of theory. Noble houses of England have contributed to Western Canada some of its most industrious farmers and some of its most despicable wasters. Boys rescued from the slums of Eastern cities are among the conspicuous successes of every community, and among its most deplorable failures. Illiterate Central European peasants have become leaders in little prairie communities, or have remained sullen strangers. It is difficult to make the West believe that a man's usefulness to the community may be measured by the cut of his clothes, for it knows otherwise.

Next, a pervading friendliness. It is not the gentle good nature of the Quebec countryside, nor the more formal courtesy of older communities. It is the attitude of men and women who a very short time ago were themselves strangers to their surroundings; of people who in a sparsely peopled countryside have needed help in many a crisis. It is a practical readiness to help the other fellow, as being the normal attitude of people who have often needed the help and co-operation of others.

Next, unusual courage and resourcefulness. To know this it is necessary to see women going about their making of a home in a sod hut or a shack of unplaned lumber; or bearing children fifty miles from the nearest doctor; or driving miles on some necessary errand in a blizzard; or facing prairie fires. It is the outcome of the taming of a new country.

Next, ambition. The West was built by men and women who went there to find something better than they had left. Some of them knew what luxury was; others came to escape dire want. What the West gave them was a chance to work hard in a new rough land. All of them struggled through many hard years before they could sit back for a moment to think what might now be done to make life a little easier. Then there are the children, who are to be given a better start and to be spared some at any rate of the hardships.

Next, an amazing energy, the necessary reaction of the human animal to a country of great distances and bracing winds, of endless tasks and few hands.

Finally, a profound willingness to try anything once. These are people who have seen a country appear out of the Great Lone Land in one generation. What they have is their own—they made it, they did not inherit it ready-made. That makes men unwilling to hear with patience that this or that thing cannot be done because no one has ever done it.

Such people as these are not likely to stand still. They are not ashamed of what they have accomplished, but there is much more to be done. There are houses to improve and homesteads to beautify. The first house is probably a shack on the bare Prairie, but its builder has in his mind a picture of the time when it will become a pleasant country home, surrounded by trees,

by shrubs and gardens. The small towns are at first crude groups of bare and unlovely buildings, without even the simplest elements of community service and convenience, but their citizens have clearly in view the parks and the paved streets, the handsome town halls and the efficient water-works that are to make them pleasant places to live.

And then the schools. Education is the obsession of the West. It is the magic solvent that is to make the people from a dozen races one in thought. It is the key to the economic problems of the present and the future. It is to revolutionize agriculture. It is more than a mere routine public service—it is a passion and almost a religion.

All this means organization. It means co-operation in which all must share. Older communities produce men and women who accept the organized world in which they grow up. They may decide to interest themselves in church or school, or to take part in the public affairs of the community, or to share in the movement for a new creamery, or for a women's institute. That will not do in the West. There are too few for the work of creating all these things to be left to voluntary enthusiasm. Public opinion drafts everyone to an allotted share in the work of the hive.

The progress of the West is one of the miracles of the world, but it has been too slow to suit its people. Older communities have had time for evolution. Modern civilization has come to them all at much the same time. Ontario and Pennsylvania started on the task of building railways and electric light plants, sewers and public schools with slight feeling that these were plain necessities of life. In Britain and in Europe, from which these communities had sprung, progress in such

matters was at best no farther advanced. The West, however, was populated by people who knew these things as normal parts of a civilization. They had no time to grow slowly from little red schoolhouse to modern consolidated school. They must start to build where the older communities had ended. It was not a case for the patient creation of a civilization by slow processes of evolution, but for the moving of a whole system of organized society, and its establishment in a land where living men still remembered the buffalo and the Indian.

In the special field of agricultural organization there were factors to make for haste and for intensity of effort to which older communities were strangers. No other area of Canada is engaged so generally in the production of one commodity on so large a scale. Nor does any commodity seem so vital to the very life of any other section as does wheat in the West. The development of agriculture in Ontario, in Quebec and the Maritimes has on the whole been along the lines of general farming, any tendency to specialization coming later, and as a part of a general change in social conditions. In the West the reverse has been the case, and since it first became evident that a market could be found for Western wheat, its production has been the normal direction of the new settler's first efforts.

In these communities then that sprang up all over the Prairies we have had stimuli to organized effort, not only from the whole form of their social life, with its emphasis on the need of every man pulling his weight in the common effort, but from universality and uniformity of interest in exactly the same problems of daily business. How to produce wheat, how to harvest it, how to sell it—those were questions which

meant the same thing to every farmer. They provided a basis for uniformity and unanimity of action to which the more individualistic farmers of the East were strangers.

The problems of production and harvesting were vital enough but all that could be done was to press on public authorities the urgent need for aid in research and in experiment. The problems of marketing were of a different order.

We have in other places dealt with the definite attempts to solve these problems; here we must consider how these attempts were initiated, and how they have affected the social development of the country.

Early in the settlement of the West there arose the Farmers' Union, and a little later—before 1900—the Patrons of Industry. These were both brought West as part of a general movement among the farmers of North America, and both failed to become permanent or useful organizations. They were based on class consciousness, rather than on definite attempts to solve problems. The first general effort to organize a body, not to protest economic evils, but to attempt their cure, was the organization of the Territorial Grain Growers' Association in 1901. That body emerged from the conditions following the Report of the Royal Commission, appointed in 1899, and the failure of the Manitoba Grain Act of 1900 to correct the difficulties in that report. It continued to furnish the grain grower with organized representation for many years, in conjunction with a later organized Manitoba Grain Growers' Association, and the Alberta Farmers' Association.

The efforts of these bodies to obtain correction of what they believed to be unfair exploitations of the

producer by the agencies engaged in marketing his grain took two directions, one leading to pressure for legislative action, and the other to co-operation for marketing on the part of the farmers. These two tendencies have continued since.

The formation of the Grain Growers' Grain Co., Limited, in 1906, of the Alberta and Saskatchewan Co-operative Elevator Companies, Limited, and in the end of the Pool, are the results of the one line of effort. The other has developed into the organization known as the Canadian Council of Agriculture—in which some Eastern representation is present—the United Farmers of Canada, Saskatchewan Section, the United Farmers of Alberta and the United Farmers of Manitoba.

In contrast with the Pool, these organizations must be regarded as essentially political. They have by no means confined their attention to problems of marketing, but have explored such questions as the tariff, credit and currency policies, and the like, and have at various times actually dominated provincial politics and furnished influential delegations of members to the national Parliament.

There can be no question of the value of these movements in the social development of the West. They have not lacked for competent leadership, not only in the matter of political skill and shrewdness, but also when measured by intelligence and information. The Prairie farmers number among them an unusual proportion of highly educated men; indeed it is doubtful if any important English-speaking or European university has not its representation; lawyers, physicians, journalists and men of every profession and of a dozen countries are to be found in Prairie homesteads—to mention the late Dr. Michael Clark of Red Deer is

sufficient as an example. In addition, the long winters, the ample provision of good literature, and the general circulation of excellent farm journals have combined to turn many men who lacked early education to adult self-improvement. In the end it must be admitted that the general average of information on social and economic questions of the Prairie farmer exceeds by far that of most rural dwellers and would easily stand comparison with that of the professional and business groups in Montreal or Toronto.

Now it is to be noted that Western discussion on public questions is essentially objective. It has in general not been provoked by a desire to attain academic correctness of thought, but by an ambition to correct what seemed to be evils under which the West was labouring. It has treated the tariff not as a wise or unwise economic policy, but as a tax which the farmer must pay on his purchases; credit and currency questions are always linked up with the interest rate to be paid on farm loans. That is not the habit of the West alone, but in other areas the fact is obscured by absence of obvious connection between the men who are speaking and the interest of an economic group; lawyers for example do not as lawyers necessarily and directly benefit from the protective tariff; the constituencies in which they live and discuss the subject may depend directly for prosperity on an industry which pleads inability to live without protection, but that still leaves them able to discuss the matter with at least some semblance of approaching it as a question of the general good.

The Western farmer must be obviously and frankly interested in his subject as a person, and as one of a certain economic group, on behalf of which he speaks,

and he is for this reason always charged with sectionalism. The West we are told is selfish and unable to see the broader national interest.

In addition the very qualities which the West has developed in its people make its presentation of its case emphatic and controversial. Its spokesmen have courage, and do not mince words; they are imbued with the idea that the world does not move quite fast enough, and are therefore often preaching ideas in advance of their season: their essential and unusual community spirit encourages them to make their case sound like special pleading for their own people and them only; and their notable willingness to experiment with new sociological and economic theories makes them seem radical if not revolutionary.

Besides these marked differences which give Western approaches to questions of national interest a false appearance of sectionalism, there is the real weakness that the West does not as a rule know the East well enough. The long stretch of barren land which divides Canada makes contact difficult; large numbers of Western citizens have entered Canada and lived in it long enough to feel themselves fully able to speak of the needs of their country, but have never seen anything but passing glimpses of Montreal, of North Bay and Sudbury, to picture to them what Eastern Canada is like.

In the East we have the same ignorance of the West, and added to it a feeling that the type of development adopted by the country before there was a West is basic, and that the suggestion that we might experiment with changes is an attack on the very foundation of the economic life of Canada.

Moreover there is an occupational difference. There

are actually more farmers east of the Great Lakes than West. On the other hand, the East is dominantly urban and industrialized. Also the Eastern farmer is not engaged in the same type of agriculture as his brother in the West. Wheat to him is a crop; in the West it is the means of life. As a result, he has always failed to create enough contacts with the West to enable it to be even conscious of his existence.

So we obtain the wholly inaccurate but very usual description of Canada as divided into the industrial East and the agricultural West.

Then again the Western farmer has always been inclined to regard himself as the victim of the oppression of great and powerful corporations. To him railways and banks have seemed indifferent to his struggles, if not actually predatory. It is probable that this is a very erroneous impression, but it has deeply influenced Western thought. These institutions have their head offices in the East, and that is another count.

To interpret the result of all these factors as evidence that the West is purely parochial in its outlook is nonsense, and dangerous nonsense. The West is no more indifferent to the general good of Canada than are the Maritime Provinces; than is Quebec, or Ontario, or British Columbia. No part of Canada has a monopoly of patriotism, nor are the economic theories of any area necessarily wise. Sectionalism is sectionalism in any part of the country, and the Easterner who wishes to dismiss Western views as radical or revolutionary because they do not coincide with those in which he is steeped is as parochial as the Westerner who complains at the selfishness of the East in not at once accepting even changes which would upset its basic economy.

That the division in opinion has been serious cannot be questioned. Fortunately, it tends to lessen. In the first place travel between the two sections is constantly being stimulated by improvements in transportation, and by the improved economic status of the West. It is deeply to be regretted that the East scarcely reciprocates completely, and that a knowledge of the West is not regarded as automatically prerequisite to a complete education. Secondly, Western life tends to become fuller and more complex; industries and the professions, arts and sciences are developing there, and despite the dominating position of agriculture, other occupations become more influential in shaping public thought. Agriculture itself tends to a wider development, and the association of farmers from all parts of the country in the discussion of the problems of dairying, of poultry keeping and sheep raising is profoundly important in its effect. In politics the East has learned the lesson that the West may hold the key to power for any party at any time.

Further, completer information and fuller study of economic problems tend to cause the West to modify its suspicion that it is the mere prey of exploitation. Steady growth in wealth and in comfort of living softens the asperity of the most discontented.

Finally, the West has tasted power—the prime cure for hostility based on fear of exploitation. Its sudden increase in influence in Parliament may not have resulted in obtaining any important change in national policies, but it has shown that no part of Canada wields more power in proportion to numbers than the West, and that its representatives are accorded full respect. It is no longer conceivable that a national government could permit the exploitation of the Western farmer

by any interest or group of interests and still survive.

The Pool has been the last touch required. In its basic industry the West has complete protection. The Pool is "big business" of the biggest type, and is today a major influence in the business world. Its officers—servants of the farmers of the West—take rank automatically with the heads of the great corporations that the farmer once feared. It dominates the Grain Exchange that he considered the abode of his enemies. It is the very emblem of self-respect to the farmer.

We see the people of the West then today emerging from one era into another. So far they do not seem likely to lose their distinguishing characteristics—their courage, enterprise, initiative, ambition, buoyant optimism. They can afford to be more mellow in their demands, more tolerant of older ideas. Their Prairie settlements are becoming modern and progressive communities. Their cities are prosperous and humming hives of industry. Their schools and universities will rank with those of any part of the country. Hospitals and parks, good roads and airplanes, all the devices of modern civilization, fast become accessible to all.

It is a big country, and much remains to be done before it can sit back even to look at the work. There are still tens of thousands of homesteads mere shacks upon a bare and treeless plain; still tens of thousands of families with nothing but the bare necessities of pioneer existence; still thousands of people almost out of touch with schools or churches, with any of the institutions that make life civilized. The work of building a new country is, however, well advanced.

The people of the West are sound. They are the logical product of a sound and healthy country, in which they have, for little over a generation, been faced

by infinite toil and seemingly endless effort. They include illiterate peasants and the sons and daughters of highly cultured homes in other lands. They include also an increasing proportion of the native-born, of young men and women to whom the West is not a new country, but an old one, the only one they have known. They are the West of the future. To look at them is to know that the future is in good hands.

The people of the West are adamant on one point—the standard of living which is to be typical of the West. This is not materialism, it is almost religious in its appeal. It is the outcome of harder early days, of total absence of the simplest comforts of life or amenities of civilization. It is the insistence of a whole community that what has been won from the wilderness is to be held. For that reason the income of the farm home is in the West the test of the success of the whole social system. It is well to remember this. The West is not fooled by the idea that any community can lift itself to comfort by its bootstraps—it is too close to the hard realities of pioneer existence for that. It is determined, however, that no avenue of effort which may aid in the setting up of a fair standard of comfort as a return for reasonable efficiency of the worker shall remain unexplored. It is a community of people willing to work, and to work intelligently, but not to be denied fair reward.

Now how does the resultant of all these social forces affect the wheat grower in his attitude to the problems of his industry?

It makes him impatient at his inability by fair industry and reasonably intelligent planning to afford what he considers a fair standard of living. The impression in other areas seems to be that the standard is too high.

We are told that the wheat-grower spends his winters in California, where whole communities are to be found wasting the money made so easily in growing wheat. How absurd and how offensive to Western sentiment such remarks are must be obvious. It would be useless to attempt to refute such arguments by statistics, since no one guilty of such prejudice would be willing to examine them intelligently. It is enough to say that no one with even a casual knowledge of Prairie farm life would believe for a moment that the fact that a small percentage of the larger-scale, most experienced and most successful farmers of the West have succeeded in placing themselves in a position of modest comfort is evidence that the West is too rich as a result of wheat-growing.

Then we hear that the Prairie farmer is wasteful, because he does not take care of his implements. There are plenty of such cases in every community the world over, and on the Prairie the situation is aggravated by the fact that to grow wheat implements are necessary, even during the initial stages before the grower has made the money to build a shed to protect them. The Prairie farmers are thrifty because they have to be, and only wasteful when they cannot afford even the instruments of thrift.

Next, they are lazy because they work for a few days in the spring and a few days in the fall. To that we can only answer that it is difficult to alter the laws of nature and produce wheat which can be sown and harvested every day in the Prairie year, and wheat, or other grain, is the only means of placing a Prairie farm on a paying basis overnight. As fast as settlement has become permanent—a long process when it is considered how many of the original

pioneers have for reasons of their own weaknesses or failure due to defeat in the struggle with nature, been replaced by newcomers who must start from the beginning—other crops, other types of farming have been added. Moreover, as many of those to whom Prairie life once appeared from a distance as a long holiday punctuated by short seasons of labour have discovered, the mere sustenance of life in a shack on a new bare homestead is sufficiently strenuous to prove an antidote to laziness.

No. The standard of earnings and of comfort is not yet high enough and that fact means that no effort may be missed which will lead to more economical production or to more efficient marketing of the product. It will be a long time before Prairie farmers can afford to take a tranquil attitude to the problems of their industry. That such a condition may tend to make them unduly impatient, unduly irritable at what may seem failure of others to permit the immediate correction of evils, is natural.

Their product is one which undergoes great fluctuations of price, and it is produced under natural conditions which may in a short time alter the volume of a crop or its quality rapidly enough to change the economic position of whole communities between wide limits—from affluence to want. The producer's effort may be constant, intelligent, and all of which he is capable, and still, by changes in rainfall, in temperature, and in distant markets, he may be swept through a whole cycle of economic changes in a month. This is bound to react in producing a desire to explore any channel, even that of a total reorganization of society, which may offer greater security, and greater evenness of reward for even expenditure of effort.

As a result, the wheat-grower is especially susceptible to the approach of those who have economic panaceas to offer, and who are ready to explain the defects of the present economic system. As we have said, the average of education is high enough to make the study of new plans of social organization an activity, not only for a few but for many. We are dealing with a people still engaged in pioneer struggles with nature, but far above pioneer levels of culture and social organization. Such a people think for themselves, and their thought is not limited and defined by conventions.

As a result, the wheat-grower tends to present the unique picture of a man who combines with a most regular and practical attitude to daily life a profound willingness to speculate on most revolutionary lines. He may be meticulous in his attitude to business ethics and still be a firm believer in the imminence and necessity of a new interpretation of those ethics. He may combine great skill and care in his personal finances, and great thrift in providing for the future with complete scepticism as to the present economic system and a profound faith in drastic currency reforms.

His attitude in this regard has created the belief that he is in danger of being swept away by almost revolutionary movements, which will endanger the foundations of society. Those who know him best do not share in this fear, and indeed regard it as ridiculous. They are entirely prepared for discussion of extremely advanced ideas of social justice and economic systems in a community which is perhaps as socially and economically stable as any in the world.

To some extent this combination of information and free thought in a rural community—a most unusual state of affairs—has affected its progress. Perhaps too

much of the competent social leadership so plentifully available has been devoted to advocating projects and reforms at present wholly impracticable; but the best proof that this, if it exists at all, is but a phase in a logical development, is presented by the fact that the most extreme suggestions for new marketing systems have ended in the creation of such a sane economic instrument as the Pool; and that agitations for drastic currency and credit reforms have produced a sound rural credits system, and aided greatly in inducing other areas of the country and other economic groups to abandon obscurantist refusal to examine our present social and financial structure, a development which must be of great national value.

The West may seem to timorous observers always on the verge of some movement which will upset society; but that is nonsense. The men who play a leading part in discussions which seem to distant observers of appalling significance may well be leaders also in the improvement of agriculture, and in sober efforts to improve marketing methods; indeed, they usually are.

The West may express profound discontent with the social structure, but so far that discontent has not inhibited or limited its progress in the creation of all the amenities of the present system, in the building of schools in which the traditional ideals of our society are cultivated, or the establishment of sound industrial and financial enterprises.

In short, the West may freely discuss most radical views concerning the structure of society in which wheat-growers will be justly paid, but it yearly expands its production of wheat in the present imperfect system of distribution.

It is to be hoped that this very freedom of thought and readiness to consider new theories will cause the West to turn its attention more carefully to the problems of its agriculture than has been the case in other rural communities. There are questions of great moment facing the farmers of all the world. How is production to be kept proportioned to markets? How can distribution be improved? What is to be the relation of the countryside to the city in the future? Once the countryside dominated the life of civilized society, now it is the turn of urban communities; is that to continue unchecked, or is there a change in sight? What of land values, of tenancy, and of the other economic problems of land ownership likely to become in the near future more pressing, as the almost completed division of the public lands of new countries comes to a close, and the economic effect of land values, almost untraceable so far in the newer countries, becomes apparent?

In older rural communities these questions are scarcely discussed, and in the West so far discussion seems to have been focussed more on possible remodelling of the existing social system than on the need for consideration of profound changes in the position of the whole of society with relation to the natural resources on which it is founded. There is perhaps too much talk of currency reform and of minor adjustments in the economic and social structure, and not enough thought of the inevitable and basic changes in the whole structure that must be produced by such events as the coming exhaustion of the natural soil fertility.

Land values, soil resources, and the relation of rural life to urban—those are the problems which the wheat-grower has to consider. It is not too much to hope

that their discussion and solution will be completed in Western Canada while other and older areas are just awakening to their existence.

The ultimate crop of a country is men and women, and a clear appreciation of this is a basic factor in Western agriculture. There is great hope to be drawn from that fact.

CHAPTER III

HOW WHEAT IS GROWN

WHEAT is grown from Sweden to New South Wales; from Chile to Manchuria; from the Punjab to the Peace River. Its origin, the first record of its taming by man, its development from a wild grass to its present perfection, are lost in the mists of antiquity, but there is reason to believe that it came with our ancestors from Asia to Europe. In America it was not cultivated prior to the coming of the Europeans, but it came to Canada more than three centuries ago, and to the Red River Valley of Manitoba early in the nineteenth century, if not before.

It is an annual plant, hardy in resistance to heat and cold, requiring little in the way of cultivation, and yielding a grain which stores and handles easily, and gives a return in net food value per acre which is exceptionally high when measured by the labour required to produce it.

Its use is universal among the most advanced groups of human society, and is basic in their diet; for that reason it finds a ready market on a large and highly organized scale.

In warm climates it is sown in spring and reaped in the autumn. In milder climates the custom is general to sow it in the autumn and harvest it the next summer. In cold climates, however, it becomes again a spring-sown crop, although there is a tendency for autumn-sown varieties to be grown farther and far-

ther north. Some fifty to one hundred thousand acres of these are annually sown in Southern Alberta.

The various varieties of bread wheat range from those yielding a soft and mealy grain to the flinty red-kernelled type. The flour of some wheat is "strong", or produces a dough which is elastic, and bakes into a spongy loaf; other flours are "weak" and will not produce spongy bread.

These factors of climate, of market needs, with others concerning yield per acre, and resistance to disease, require to be balanced in order to obtain exact knowledge of the most profitable variety to produce in any given area. In the case of Western Canada the accepted variety is Marquis, developed by the officers of the Dominion Department of Agriculture, and regarded as almost perfect in its adaptation to the Canadian prairie climate and soil, to the needs of the great markets for our wheat, and in resistance to the typical diseases of wheat. We shall not go into the history of the matter, which is to be read in many other places. Probably eighty per cent. of all the wheat grown in Western Canada is of this type.

The Dominion Department of Agriculture is continuing its efforts to improve on what has been already done, and new varieties, such as Prelude, Reward and Garnet, are being developed, which are more resistant to frost or to rust or earlier in maturing. There is no question of the value of this work—especially in the matter of resistance to rust. A tendency is shown in the non-technical press to speak of frost-resisting qualities as being revolutionary in their effect on the area which can economically be devoted to wheat. It is no exaggeration to say that some of the statements on the subject might create the impression that we

were on the verge of finding a wheat which might be grown at any place on the land area of Canada. That is obvious nonsense, and suggestions of that sort have never been made in the modest official statements announcing the new varieties.

In addition to soil conditions, climatic conditions will always interpose a barrier to the northward extent of the wheat country. No one yet forecasts the development of a wheat which cannot be injured by some degree of frost when it is in the early stages of maturity, and frosts of any wanted degree and occurring in almost any week of the year can be experienced by going far enough North.

The immediate economic value of hardier and earlier maturing wheats lies in the fact that much of the existing wheat country is subject to frosts of destructive effect at critical periods in the year. Sometimes they are followed by long periods of warm weather, but damage to the volume and even greater damage to the grade of the wheat will have occurred. The new varieties should find their greatest use to meet that condition, both by their resistance to early frosts, and by the earlier maturity which will enable them to escape the later.

In the matter of resistance to rust the benefit of improvement of variety will be very tangible. The source of rust spores is known, and eradication of the "host"—the barberry bush—is proceeding. Research, into the technical details of which we cannot go, is proceeding in the direction also of finding measures of controlling rust in the field. It is generally accepted, however, that the greatest hope lies in the production of rust-resistant varieties. Earlier maturity is also very valuable in the fight against this disease.

On the whole Marquis still holds the premier place, and sets the type of quality for which Western Canada wheat is known. It has been said often that good as is the situation in this matter, the producers of the wheat country would benefit greatly by concentration on a few varieties of known excellence, and there are still too many farmers ready to experiment with new wheats offered by salesmen. The effect of too great a number of varieties on the grading and consequent market value of the crop is obvious.

In addition to the selection of the correct variety, there is the matter of choosing good seed, and in this an elaborate propaganda of education has been carried on and an excellent system devised to aid the producer. Under the auspices of the Dominion Department of Agriculture there has been organized what is known as the Canadian Seed Growers' Association, one of the many Government-subsidized non-profit associations which contribute so largely to agricultural progress in Canada. It includes a representative from each Province, and meets annually and alternately in the East and the West. Its functions are to make regulations for the registration of seed-crops, to keep records of registration, and to issue certificates which will assist the grower in using only seed of known origin and pure in strain. It permits the growing of seed of known varieties, and of new varieties created by plant breeders, under the strict supervision of the association. It guards the sale of registered seed by regulations which insure that a farmer who buys a certain variety of seed obtains pure seed of good quality.

In addition, under the Dominion Seeds Act of 1923 the central Government created a service to perform

the inspection of all seed, and of fields in which seed is being grown, and also the grading of seed. This service is known as the Seeds Branch of the Dominion Department of Agriculture, and has headquarters at Ottawa and representatives in various other centres. It is administered with the competence which distinguishes the agricultural service of Canada throughout.

This control over quality and purity of type is then carried into definite assistance to the purchaser of seeds by various organizations which produce and sell seed, an association of registered seed-growers being engaged in this commerce on a large scale in each Province.

Many reputable private firms are also engaged in the distribution of registered seed under the same careful supervision.

When we come to cultural practices we enter on a field which has been widely explored. We commence with the fact that wheat is not grown generally in Western Canada as a part of a regular rotation of crops, but as the chief and often the only crop. The allegation is often made that this is soil-mining, and that the only trouble with wheat-growing is that it is carried on by men too lazy to farm in a more general way.

It is, however, useless to produce crops except for sale, either directly or indirectly through livestock, and sale implies a market. Wonderful development has already been accomplished in the creation of a dairy industry in Western Canada, to take the typical example of the alternative methods so freely recommended to the grain-grower. To enter this form of farming, however, requires more skill and more capital than will suffice to place a farmer on a paying basis—

with good luck—by the route of wheat-growing. The markets of Western Canada are circumscribed, by lack of local industrial communities and by distance from other areas. In addition, dairying requires a certain amount of organization—a creamery, or a cheese factory. Experiments with cheese factories have not been very successful, for the reason that a certain minimum volume of milk is needed within a small radius, as whole milk is a bulky and perishable commodity; and that is seldom available in the West. It is easy to point to the success of Eastern Ontario in this regard, but equally easy to forget that when Ontario built its cheese factories the cows to provide them with milk were already there—the result of a different type of development.

Creameries, which can draw their supplies from a larger radius, are more successful, especially now that the growth of large cities, with a demand for supplies of fresh milk and cream, has widened the market.

In recent years, however, the price of wheat has tended to be higher in proportion than that of butter—for reasons into which it is not necessary to delve here—and this has checked dairy development. It is very much the same in other types of farming recommended to the wheat-grower, and on the whole it must be admitted that his judgment in sticking to his system is justified by facts. There are many conspicuous examples of success on the part of men who came to the West determined to adhere to methods of farming which they knew to be sound—we might be permitted to mention the names of W. R. Motherwell and Robert Forke in this connection, both at this moment members of the national Government—but it is obvious that had every farmer who settled in the West attempted to

follow that course, none could have succeeded. Much land in the West which will successfully produce grain lacks a supply of water sufficient for live stock.

The Western farmer in short has grown wheat by the one-crop system, not from unwillingness to engage in other types of farming, but from economic necessity. The campaign to encourage other types of production is on a sounder footing today than ever before, but it will be many years before it can change the general type of Western agriculture. Moreover, many areas settled by wheat-growers in the first place have proved unsuitable for that form of cultivation, from soil conditions, or lack of moisture, and every effort to foster other types of agriculture is naturally devoted to them first, where there is the opportunity for a change.

The ultimately inevitable change in type of Western agriculture seems likely to come by the road of each farmer adding to his operations the cows, the poultry and the pigs necessary for his own household requirements, and the gradual building of whole industries on that basis. This process is already far advanced.

In any case, the production of wheat is still on the one-crop system, typical rotations being fallow, wheat, wheat or oats and fallow, or fallow, wheat, wheat, oats, and fallow.

Summer-fallowing is the process of keeping land under cultivation for a season, without producing a crop. It has been accurately said that "to the summer-fallow more than to any other farm practice we owe the progress in agricultural development in Western Canada. It has been criticized, and its faults have been often emphasized, but such criticism is ill-advised in view of the record of past performance. Under present conditions, there is no satisfactory substitute for

the summer-fallow, the economical utilization of the crops used as substitutes being a limiting factor. A complete change in farming systems is necessary before a complete replacement of the summer-fallow can be brought about." (Soil Survey Report, University of Saskatchewan.)

It conserves moisture by the creation of a mulch, and permits plant-food in available form to be accumulated ahead of use. It also provides an acreage ready for seeding early in the next season, which has been worked while men and horses were free from other pressing tasks. It assists greatly in cleaning the land of weeds, and the weed menace is naturally acute in a country in which inter-tilled crops are not grown, nor large areas pastured in regular rotation nor cut for hay. In most years—and with occasional most marked exceptions—it gives a yield fifty per cent. higher than where it has not been done.

It has the disadvantage that it adds to the cost of the crop, but at that is preferable to the production of economically useless crops. Another less marked disadvantage is that the saved moisture in the fallowed land may in a moist year produce too rank a growth and too late maturity of the crop, but this must be regarded as exceptional in an area in which excess of moisture is not usually a fault. It also tends to exhaust available nitrogen, and especially organic matter.

Organic fibre is the chief means of holding together soil, especially when, as usually in Western Canada, it is too dry and exposed to high winds, and its lack, accentuated by too much fallowing, is likely to lead to "soil drifting", one of the typical dangers to profitable farming in Western Canada.

It is also often alleged that the western grain-

grower, in addition to soil mining, does not mine intelligently, but uses poor methods of cultivating even if he plans one-crop farming. That is as a whole, and with allowance for the individual factor, unfair, and the statement is usually the result of ignorance of Western conditions. Typical Prairie soil may suffer more—as is often the case in summer-fallowing—from overworking than from lack of cultivation, and in general the thoroughness of cultivation is well adapted to local natural and economic conditions. The practice of "stubbling-in" grain, or sowing it on a seed bed produced by using a disk harrow to loosen the soil in a field which still shows the stubble of a previous year's crop, is especially condemned by casual observers, but may be wisdom in not over-tilling a light soil, and in preserving the protection of the stubble against drifting, as well as it may be the result of unwillingness to do the work of ploughing.

The preparation of the seed-bed then is done in Western Canada on lines which the experience of hundreds of thousands of farmers, gained over more than a generation, and directed by the study of a large number of technical experts of scientific training, shows to be suited to the conditions.

The seed is sown at the rate of one to one and one-half bushels per acre and sowing is not usually followed by any special cultivation.

Work on the seed bed must start as early as possible. The growing season is short, and the spring is usually cold and the land not in condition to work until a very short time before the temperature makes the sudden rise characteristic of the transition from spring to summer in the West. The high altitude and the northerly location combine to produce long hours of day-

light, which must be used to the greatest advantage. That they are is shown by the fact that 22,000,000 acres of wheat on 250,000 farms may be sown in a month.

The mythical period of rest for the grain-grower does not at once commence. Despite our insistence on the dominance of wheat in the agricultural economy of the West, other grains are grown, partly as a part of rotational changes, partly to suit special soil types, and partly because they may ripen even if sown after it is too late to add to the wheat acreage. Then the steady increase in the number of livestock, and in specialty crops intended for sale to the growing urban communities, adds both to the number of acres cultivated and to the hours per acre used. In Chapter I we give figures showing this change in relative proportion of various crops.

This brings us to the commencement of summer-fallowing, and it is to be remembered that one acre in three of the normal wheat area will now be ploughed, and the "duckfoot" cultivator or the disk harrow kept going continuously, the ideal being "black fallow", in which no weeds may show their heads.

The problem of weeds in the West is a major one. Grain-growing is an ideal method of encouraging their propagation, for it limits the inter-tilling of crops to the minimum, demands the full ripening of every crop —with its attendant weeds—before harvest, and the careful saving of every kernel of grain, plus every weed seed. In such circumstances no care can prevent the constant re-seeding of weeds, and the most persistent types become an economic menace.

Control is exercised under Provincial legislation, varying somewhat in each Province, but all providing

for municipal responsibility for weed control, under a more or less general supervision by the Provincial Department of Agriculture, and with penalties for individual farmers who fail to do their share in the work of eradication, and power for the authorities to take the necessary steps on the property of absentee landowners.

The actual methods of control ordered are all in the form of cultural practices, with special emphasis on care of fence rows and idle corners of fields. Much stress is now being laid on possible increase in livestock, especially sheep husbandry, which often enables weed control to be carried out economically where ordinary cultural practices would be costly.

In addition, the method of spraying chemicals on the growing crop to destroy certain weeds is being used. Its limitations are obvious, however, in the heavy added cost per acre, and in the fact that no application can be devised which will control all important noxious weeds.

The weeds of the West are generally importations from older areas. They include wild oats, which are very difficult to control, owing to the fact that the seed will survive long burial in the ground, and which can only be fought by the use of crops which mature early, and thus permit the grain to be harvested together with the unmatured weeds; Canada thistle, which is extremely injurious to crop yields but can be controlled by proper fallowing; wild mustard, the control of which is usually attempted in early stages of infestation by hand pulling, a method which is standard in the smaller fields of older countries, but hopeless in the West; sow thistle, Russian thistle, tumbling mustard and quack grass, each with its special problems.

The equipment needed for this preparation of the seedbed and later cultivation is extensive and costly. The average Western farm is of some 358 acres, with 140 acres under cultivation, of which 93 acres are in wheat. Its operation would require some 8 work horses, the standard working unit being 4 to 6 horses. Ploughing is done usually with the double or triple disk plough. In addition there are required disk harrows, cultivators, drag harrows and minor equipment, besides the use of farm wagons and other articles of general purpose.

Mechanical power tends to increase, the typical form being a tractor of 12-24 to 15-30 H.P. rating. It is estimated that nearly 50,000 tractors are in use on the farms of Western Canada.

Western equipment is notably heavier and larger than similar machinery in older areas. Its use and the avoidance of unnecessary wear, expense for repair and loss of time while it is out of use, combine to make the success of the farmer depend in no small degree on his mechanical aptitude and ingenuity. His horseflesh is usually of good quality—Clydesdale and Percheron grades being typical—and is well cared for, which reflects a high average of special ability in another line. His cultural practices, while peculiar to the area, must be directed by judgment, and carried out skilfully. On the whole, the impression common in other communities that his farming is a hit and miss scratching of the top soil is a ridiculous perversion of the truth.

It is not adapted to the permanent maintenance of soil fertility. Few agricultural areas even approach this ideal, since to fulfil it requires a combination of application of mineral soil constituents with livestock or green manuring to maintain organic matter at a

proper level. Today few crops pay well enough to permit full attention to these needs, and on the whole the world's removal of plant food from the soil exceeds its replenishment by man combined with the amount annually made available by nature from her stores. That the West falls below the average in this respect is unquestionable, since its agriculture, as we have explained, is economically limited to certain types, and since further, world prices for the product of its type of agriculture are based on cheap land of virgin fertility.

This subject is too vast to be explored here, but it is interesting to reflect on the fact that the world's supply of wheat for international commerce comes almost wholly from new countries, in which men are still engaged in ploughing and reaping without any serious attempt to do more than conserve still unused natural wealth, and have not yet even attempted to plan for replacement. The effect of this condition on the economy of the modern world is profound, and the effect of the change when an end comes and food is no longer to be won from the stored wealth of the ages will be cosmic.

At present the West as a whole is not lacking in natural soil fertility, and although most interesting experiments have shown that at least some of its fields can be induced to yield more by the addition of certain fertilizers, there are reasons for believing that the greatest care should be used in interpreting their result, and in arguing from them that all that is needed to double or treble the yield of wheat in Western Canada is a supply of fertilizers.

The time is indeed approaching, more rapidly on some soil types than on others, when this must be con-

sidered, not to increase yields, but to hold them at the present level. At the moment, however, the limiting factor in wheat production on the present acreage is not the lack of plant food, but the lack of rainfall.

At the end of this volume will be found a chart showing fluctuations in the total crop of Western Canada, and also the variation acreage each year. Nothing is more remarkable than the failure of wheat production to respond automatically to increased ploughing, and no one can in the least comprehend the problems of the industry and their reaction on the mentality of the people engaged in it who does not grasp the fact that in no other industry of a similar scale—except wheat production in directly competing countries—is the labour of man, and the investment of his resources, so at the mercy of nature.

This means that the change in farm income due to this factor may readily exceed—if other countries happen to fill the gap in world supply created by a short crop in Western Canada—the change that would occur by such a sudden rise in price as happened early in 1929. That is, skill in production, economy in expenditures, organization of sales, or any other human factors being assumed—as has never happened in any community—to remain constant and at a high pitch, something which man cannot control may still make all the difference between prosperity and want for a whole countryside.

So far, no direct method of relating yield per acre to rainfall has been found, some interesting studies in this regard seeming to show that the yield per acre is likely to be more dependent on the precipitation of the preceding autumn and winter than on the actual rain of the growing season.

Not only will wide variations in moisture conditions affect the total yield, but also the reward to the farmer for skill and attentior to accepted rules of farming. We have already pointed out that in unusually moist seasons even the tried practice of summer-fallowing may defeat its own object, by providing a surplus of moisture, and delaying maturity.

Plant diseases, of which rust is the most dangerous, are, as we have said already, the subject of skilled research, with bright prospects of success. Rust, however, still remains deeply influenced by weather conditions—an increase in temperature and humidity being almost a certain signal of damage on a large scale.

The problem of moisture is complicated by the fact that the very conditions which produce a large yield may be conducive to slow ripening of the grain, and leave the crop at the risk of serious damage, both in quantity and quality, from early frost. We have referred to efforts being made to improve the adaptation of wheat to these conditions, but it must be remembered that many years must pass before a wheat is produced which we can feel assured will combine early maturity to meet the needs of the moist years with maximum yield in dry seasons. It is often suggested that increase in land suitable for cultivation and assurance against lack of moisture in all areas can be obtained by irrigation. That subject is in itself an extensive one, and we can only say here that irrigation is now applied to 66,260 acres in Western Canada, and is available for 1,038,160 acres. Its application is limited by the supply of water and the contour of the country, and while its success in Western Canada is very marked as compared with other countries, the universal tendency is for the value added to land by

irrigating it to be added at once by the owner, and to influence him to use it only for more intensive and more profitable crops than wheat. It cannot be considered as to any extent a solution of the problem.

The man-power factor in wheat-growing might now be considered. The typical Western farm employs two men and a boy, including the owner or operator, and one man hired, at about $40 per month, with board. The labourer's cottage is not yet a serious factor in the situation, although an increasing number become available. Additional labour is hired for the harvest.

The supply of labour is as usual in all agricultural areas at present a pressing question, not only because farm wages tend to be lower than those in cities, but because there are both a lack of permanence in employment, and a lack of opportunity for a man living in his employer's house to plan for the full individual life to which the normal man looks forward. On the other hand, the provision of a cottage involves a certain permanency of employment which the farmer sometimes hesitates to undertake.

The increasing mechanization of agriculture is an outcome of this condition, and we deal more fully with this subject in other places.

An important question is that of the unpaid labour of the operator's family. It is an ancient and universal custom for the farmer's children to assist in the lighter work, and in the case of Western grain-growing, the use of large units of both horse and mechanical power makes the efficiency of even a young boy much greater than when his work is done with lighter equipment. When we discuss the cost of producing wheat we shall again go into this, but it is important to remember that unpaid labour is a large item.

Wheat-growing is then a complex and laborious affair, and as it is practised in Western Canada, is as scientific as the conditions permit. It is essentially extensive agriculture as opposed to intensive. Success in it requires a high standard of managerial ability, a high degree of manual skill, and knowledge of many natural laws. Its progress and the application to it of even more skill and knowledge are certain, but it is equally certain that the often-expressed view, that it is a mere rough soil-mining still in its primitive stages, is highly incorrect, and that many of the possible avenues of improvement by the application of science are blocked or narrowed by economic and natural obstacles.

It cannot be too often repeated that it is not permanent agriculture, and that only revolutionary changes in the relation of commodity prices could permit it to be placed on a basis where it could be carried on without constant drafts on the natural capital of the soil. It is a pioneer expedient, but without it Western Canada could never have been settled, and every economically possible measure is being adopted to limit its waste of fertility, and to bring it to a place where it can be absorbed into the general system of permanent agriculture which is the ideal of the technical agriculturist.

This chapter would be incomplete without reference to the services to the country of the experts provided by the Dominion and Provincial Departments of Agriculture, by the universities, and by other bodies. The willingness of scientists to labour unceasingly, and for small immediate and material reward for the benefit of the race, is proverbial, but it has never reached a higher peak than in the service of agriculture, where

it is inspired by a quiet but sincere human longing to assist in raising the level of comfort and reward of the average toiler, which is deeply impressive to all who see these practical, efficient and modest workers about their task.

CHAPTER IV

HOW WHEAT IS HARVESTED

THE harvesting of grain has gone a long way since the days of the sickle, the gleaner and the flail. There is no more impressive instance of the change in world economics produced by the application of mechanical power. In another chapter we discuss what appear to us to be the limitations of this change, and here shall confine ourselves to a description of modern methods of wheat-garnering as practised in Western Canada, with a minimum of comment.

Wheat is ordinarily reaped and tied into sheaves by the self-binding reaper with which every reader is familiar. The scale of operations is the only limit to the size of the equipment used and the replacement of horse by mechanical power.

The sheaves fall from the binder in irregular rows, and although many attempts have been made to perfect machinery for assembling them into stooks, the operation is still performed by hand, and constitutes the major hand operation on a modern grain farm, and the chief reason for the annual pilgrimage of harvesters from other sections of the country to the wheat-fields.

From the stook they are carried to central points for threshing. The climate of Western Canada, and the need for special economy in the handling of this mass of dried vegetation have caused a complete abandonment of the older system of drawing wheat to a stack,

where it is left to "sweat", and to be threshed when the labour of the farm is not otherwise engaged. The dry climate renders it possible to thresh without this delay, while the impending approach of a severe winter makes it advisable to rush the completion of all outdoor work as soon as possible.

The binder and the labour of stooking are normally provided by the individual farmer, but the actual operation of threshing is, except on large farms, conducted by professional specialists, who move from farm to farm. The threshing is done by the standard type of grain separator.

The desire to avoid unnecessary handling of the resulting grain has been at the root of the general custom of not providing a central granary on each farm, but of placing wheat after threshing in field bins, or in piles in the field. It has always been recognized that the best practice of all would be to thresh directly into the grain tank in which the wheat is to be hauled to the elevator, but the impossibility in most cases of adding this immediate movement of the threshed grain to the already high peak of labour and power employment induced most farmers to spend the additional money on the erection of field bins, or to accept the inevitable waste resulting from piling. Where direct hauling to the elevator was in vogue, a minor saving was often made by providing a hopper holding one or more wagon loads of grain as it came from the separator, thus making it unnecessary to keep a wagon standing at the separator while its tank was filled. There has been some tendency to haul in wagon trains drawn by a tractor, but the lack of suitable roads for such heavy traffic, and objection to the use of tractors on elevator ramps not built to bear them, have limited it.

This system has for many years been standard and one of its interesting results has been the annual mobilization of an army of labourers in every part of Canada, attracted by the low fares offered by the railway companies, and by the high wages—five or six dollars per day. The movement of harvest labour has attained the high figure of 33,000 in some years, and was even extended experimentally in 1928 to include some 8,500 unemployed men from Britain, chiefly from mining districts.

It is estimated that the cost per bushel, assuming a 600-acre field, would be about 17½ cents. This is of course for an unusually large unit, and the average field of 93 acres per farm probably made the cost 25 or more cents per bushel, or even if we assume that the farmer and one grown son were engaged, an out-of-pocket expense of several hundred dollars per farm. This is a large part of the value of the grain, the average net return to the farmer at the country elevator being, in recent years, 96 cents per bushel. In addition, the labour thus brought to the assistance of the farmer varied greatly in cost, depending on demand and supply at the particular point to which he should go to engage the men, and especially in efficiency. Some young farmer from Eastern Canada, with perhaps two or three years of experience in Western harvesting, might make a great saving in harvest costs as compared to an unemployed city clerk, interested chiefly in obtaining a paid holiday.

More than that, the necessity of providing board and lodging for a large number of temporary workers, including the crew of the threshing machine, imposed a great strain on household arrangements, so that despite the undeniable increase in the liveliness of

farm life, the cost may well have outweighed the benefit.

In these circumstances it was natural that attempts should be made to develop some mechanical device which would enable the ordinary operating force of the farm to meet this peakload of work, and as far back as 1890 there was introduced in certain parts of the Western United States a combined reaper-thresher, intended to convert the field of standing wheat at one operation into grain ready for market. It was not a new idea, since it had been tried many times before, but it first found the suitable economic and natural conditions for its development in the latter days of the last century, and in the semi-arid areas of the inter-mountain region of the Pacific States. Its use spread slowly, the first recorded case in Western Canada being in Saskatchewan in 1910. In 1922 experimentation was undertaken by the Experimental Farms Branch of the Dominion Department of Agriculture at Swift Current, and a machine was also sold to a private user in the same Province that year. Three more were sold in 1924. From this small beginning there has been a great increase in the use of these devices, the estimated number at work in the West in 1928 being over 4,300, and in 1929 over 7,800.

At first the combine was used only in the open plain districts, but since then it has been found practicable to employ them in even fairly hilly regions, and in the park land areas. Naturally, to use them economically, it is desirable that the whole field to be reaped shall be at an even stage of maturity, as not only efficient separation of grain from chaff, but also the grade of the crop will depend on its garnering at the correct moment. Since this is not always to be arranged, especially on

some types of soil, certain auxiliary devices have been produced, such as the header-barge, by which the grain, where it is not ready for reaping with the combine, or where it is so injured by sawfly, or infested with weeds as to make the use of combine inadvisable, may be headed off, and the heads then dumped into piles to be threshed later by the combine, or such as the windrow-harvester, which cuts the grain and lays it in long rows, later to be threshed by a combine equipped with a special pick-up.

The estimated costs of these operations, on the same basis as used for the binder-separator system, are as follows:

The combine alone	9.3 c. per bushel
Header-barge and combine	10.4 c. per bushel
Windrow-harvester and combine	13.8 c. per bushel

Careful studies of the grain lost by the various systems, and of the grades of the crops as harvested by each have been made, and the general impression seems to be that the combine has come to stay. It represents a large addition to the farm investment in capital, as it may cost from $1,200.00 to $3,000.00; its use in certain cases is still impracticable, although adaptation is proceeding; it is only economical on a certain minimum size of farm, the excellent bulletin on its use, No. 118 New Series, Dominion Department of Agriculture, stating that no farm of less than 320 acres of arable area can support even the smallest present type of combine—although even that may change should newer types for smaller units be developed; since it leaves a long stubble as compared with that left by the binder, it may involve changes in other farm practices.

On the other hand it greatly corrects the peak-load labour problem of harvesting, as will be realized when we see that the special movement of harvesters for the two similar-sized crops of 1924 and 1929 dropped from 21,000 to nil, at least in part as a result of employment of the combine.

The wheat once threshed must be transferred to the country elevator as the first stage of its journey to the world's table. In the past the teaming of wheat to market has been an appreciable part of the farmer's work for both men and horses, in the season when they could not be otherwise employed. Even the greatest advocate of efficiency, however, will admit the unpleasant features of long, slow drives on an open wagon across the Prairie in winter. In addition, the increasing use of the combine which assembles in its grain tank a wagon load or so of grain in the course of its travels, complicates the problem of handling threshed grain so as to minimize cost. To have it drawn from the combine to a central store each time that a wagon load is ready involves another handling, while to draw it direct to the elevator means the provision of extra labour and horses, which is exactly the condition which the combine is intended to correct.

As an answer to this question and for other reasons there has been a tremendous increase in purchase of motor trucks. Study has shown that many of them have been overloaded, many overdriven, and many used on roads unfitted for such traffic. None of these objections is permanent.

The cost of a truck is a considerable item in farm investment, however, and estimates as to savings obtained by the use of the combine should take in also possible additional costs resulting from the use of the

truck if that proves an essential part of the system. At present studies have been confined to each of the parts of this new system of garnering grain, rather than extended to deal with the whole question. In the absence of complete studies we incline to the belief that the savings produced by this modern development of harvesting methods have been much exaggerated, and should not be regarded as fundamentally changing the economics of grain-growing. We should anticipate more perfect adaptation of both combine and truck to the needs of the farmer, and a disposition to regard their addition to the farm investment as for the convenience of the farmer rather than to meet any economic problem.

An interesting minor effect is that produced by the possible cessation of the annual harvester movement, and this has even been mentioned as a major example of economic revolution in the relations of agriculture to urban society. We cannot agree with this, the harvester movement appearing to us to be a very minor economic event.

Mechanization, as we say elsewhere, is not to us a portent of coming revolution. It is a logical development—an addition to the ease of rural life. The individual farmer certainly so regards it, and it is improbable that he will surrender to the machine those things which he regards as of value.

Wheat harvesting experienced its great revolution with the coming of the self-binder, and the addition of the combine is a minor incident. Even the self-binder has failed to make the farmer a mere slave of industrialism, and we do not fear that the combine and the truck will do it.

In short, we expect the farmer to use the time and

effort so saved for the improvement of his home and of his life, and not surrender it, with the acres in which he has rooted himself, to some great corporation of wheat-manufacturers, merely because some one shows him figures to prove that he should do that.

CHAPTER V

CROP FORECASTS AND COST STATISTICS

THE distribution of the world's wheat surplus is a major commercial undertaking, and a favourite outlet for speculative use of idle funds. Naturally, accurate and recent information as to crop conditions, stocks on hand, and movements from port to port must be available, and many private and public statistical organizations furnish this, either as a public service, or as a private. The daily grain market news is never without its recent Government estimate of acreage sown or harvest reaped, its news of frost in the Argentine or rain in some drought-stricken area of Australia, and its note that "Broomhall says——."

It is impossible to exaggerate the completeness of the service thus provided, which tirelessly gathers every single detail of weather, of market movements, of disease in the field, or change in demand in the market, much of it to be broadcast for the information of all, and the rest to be handed as confidential information to great buyers or to those who have a large amount of money at stake on the exchanges.

The producer is apt to regard this with suspicion. He notes occasions on which the market slumps heavily on the issue of some report showing unexpected betterment in crop conditions, and when his pocket-book suffers directly as a result. Then at times a report either exaggerates crop prospects unduly, or does not foresee one of the many changes in natural conditions

which may alter the world surplus by many millions of bushels in a short time. Quite naturally, if unfairly, he attributes such incidents to the conspiracy of the buyers and the speculators to rob him of his fair return, and much bitter comment has been poured on the head of those who report crops.

The attacks are usually directed at the Government estimates. The suspicion that private estimates, or even those issued by the banks and railway companies as contributions to general knowledge of business conditions, are part of a plot against him merely adds to his impression of a general conspiracy; but for the Government which he aids to maintain to share in the plot is too much.

Whether it is a logical function of the Government to issue such statements or not is a debatable question, but there can be no doubt that the custom was inspired by a sincere desire to prevent manipulation of the market by means of false reports. It is conceivable that every single private interest might be gathered into a great scheme to depress the market artificially, but should it be possible for the Government, perhaps at the critical moment, to intervene with a true picture of the situation, the risk would be too great.

Nor can there be any doubt that the Governmental officials charged with this task have given every possible attention to the obtaining of correct figures. The condition of a crop may change so rapidly that before the estimate is issued it may be completely out of date, but the cases where estimates have not reflected the true state, and bad market effects have resulted, are unfortunate co-incidences, if they exist at all.

Certainly private agencies will continue to prepare estimates and no compulsion could prevent this. It is

therefore desirable that the Government should continue in this service in order to prevent any possibility of rigging the market.

The private agencies preparing crop estimates as a service for dealers in grain are anxious to have those correct, since no dealer, however eager for a good or bad crop for financial reasons, would wish his own information on the point to be coloured to suit his desires. The other private agencies which prepare and issue estimates as a general public service might be willing to have their figures more optimistic than facts would justify, in order to stimulate business activity, but they do not as a rule attempt estimates of yield, but confine themselves to general descriptions of crop conditions, and the responsible men in charge of great banks or railways are not so foolish as to attempt any serious misrepresentation of conditions, even if they usually incline to optimism.

The effect on the market of all these reports is important, but may easily be overestimated. The price of wheat is fixed by many factors, of which the yield in any area is but one. A general strike in Britain, rumours of war, a panic on the stock market—any one of these will affect wheat prices. Not long ago a sudden break on the stock market in New York is alleged to have caused a single operator in wheat on the Chicago Board of Trade to dump several millions of bushels of options in one day in order to obtain cash to protect his stocks in New York. The resulting break was considerable.

On the whole the man who has the most accurate market information is in the best position to bargain, and the fact that a number of agencies are at work giving the public constant reports of crop prospects

is not an advantage to any small group of insiders, but on the contrary a defence against any such conspiracy.

In the case of the farmers of Western Canada they not only have this protection, but also a new advantage in the Pool's highly efficient crop reporting service. This means that should any report fail accurately to describe crop conditions, the group of speculators attempting to profit from it would not be dealing with many producers unable to judge of the truth of the report, but with a great central body, likely to be at least as well informed as the gamblers, and able to catch them in their own trap. We lay stress on this, since the feeling that crop estimates are a possible danger to the producer has been wide-spread, and it is important to show that even if that were once the case —which is very doubtful—we have passed that time. The published estimates are remarkably correct as a rule. Those issued by the Government are obtained by a great corps of crop correspondents, and are issued by the Dominion Bureau of Statistics at Ottawa. They are based on the correspondent's opinion of the comparison between the current crop and the average of the crops of the last five years. The Pool objects to this basis of reporting, as requiring the correspondent to carry in his mind a picture of the crops of five years, and prefers the method used by the United States Government, which gives the crop in terms of a full crop. They believe that it is easier for the average correspondent to picture that than to remember the crops of a series of years.

Pool estimates are prepared from the reports of some sixteen hundred elevator agents, sent by telegraph once a week or when requested; from similar reports from more than three thousand secretaries of Pool local

associations; and from the careful study of a staff of trained field-husbandry specialists, drawn from the three universities of the Prairie Provinces, who just prior to the harvest make a tour of the West, in motor cars equipped with devices to combine actual distances on road frontages with estimates of depth of fields in extremely accurate acreage figures.

All these reports are sent to the statistical office of the Pool, and the deductions from them used both to inform the sales staff, and to correct erroneous reports of crop prospects. They are not issued as propaganda for price effect, as is shown by the fact that Pool estimates of the 1929 crop often exceeded those of other agencies, despite the importance of showing the great extent of crop damage in that year, which has been critical as a test of Pool ability to improve marketing of grain.

In addition to the Pool and Government estimates there are many private ones, the most important being that of the Winnipeg *Free Press,* which is taken seriously by the trade. It is prepared by members of the staff of the journal, which has long been regarded as an important organ of Western opinion.

Crop estimates are inevitable, and are generally prepared with the one object of having them correct. The producer has no reason to feel that they are harmful to his interests.

Another statistical enterprise to which the producer often takes exception is that of investigating the cost of production of wheat. In this case it must be admitted that he is directly to blame for the false importance attached to the subject. It has been the custom for those who argue that the farmer is underpaid to insist that his costs of production are too high—usually be-

cause of some factor that the individual speaker or writer thinks could be removed by legislative action. As a result we have the constant overstressing of the disabilities laid on the producer by others, and an inclination to give more effort to removing them than to the correction of conditions within his own power to control.

The great danger is that this question of cost of production is a game at which two can play, and we now have as many engaged in showing that it is not too high as in arguing that it is.

Cost of production is a matter to which industrial corporations give keen attention. It is divided into fixed charges, overhead, raw materials and labour in the accounting of most manufacturers. Fixed charges are interest on bonds, taxes and such items whose incidence and amount cannot be avoided. Overhead is the cost of services, such as management, sales and advertising, which apply to all the product, and cannot be accurately allotted to each item of production. Raw materials and labour are those items in so far as they can be attributed to each item of production.

Now what are these items in the economy of the average farm? Fixed charges would include taxes, insurance and other unvarying items of annual expenditure; it would also include rent, or the interest on the value of the property. Manufacturer and farmer alike regard taxes and insurance as necessary evils, and are only limited in their desire to see them kept down by willingness to have the services for which they are charged improved or extended. When we come to the value of property, the attitude of the two groups changes. To the manufacturer the physical equipment that he uses is a tool; his real property, the assets

which he wishes to increase in value, are such intangible things as goodwill, sales connections, earning power. He will of course include in his annual statement of assets all his buildings, all his equipment, and in his statement of profit and loss, the increase in these items. On the whole, however, he would much prefer to see these items remain as small as possible. With minor exceptions, such as when the land on which his factory stands has a special real-estate value, his physical property is not a good place in which to invest surplus earnings, for it is not usually very saleable, except as part of a going concern. A brewery may be a very costly group of buildings, but the owners would prefer not to expand them except as a necessary preliminary to increasing output, for if for any reason the business were to be wound up, it might be very difficult to get the money back. A farmer on the other hand will cheerfully put money into either the improvement of his present property, or the addition of more to it, far beyond any need of increasing his output, for farms are saleable at any time under normal conditions, and are in any case primarily homes rather than business institutions.

Now, in accounting for cost of production note the difference of the effect. The manufacturer should and does regret the added cost per item produced by improvement in the value of his plant. The farmer has the same addition to unit cost of production as the value of his farm increases, but is scarcely likely to regret it. He may become comparatively rich by such an increase in price of land per acre as would make it apparently unprofitable for a purchaser of the property to continue producing wheat.

One reason is of course that the proportion of land

in the two investments differs very greatly. Other portions of plant are necessarily special in design and in use, but land has an infinite number of uses. The farmer who finds his land too high in value for wheat growing may sell it, or turn to more intensive cropping. The manufacturer's land is not usually likely to rise in value enough to wipe out the cost of the changes in other forms of plant that he must make in order to realize on it.

Next we have overhead. In the case of the farmer this is simply his cost of living—the item covering the maintenance of his home, which will go on whether the crop is a good or a bad one. In the case of the manufacturer overhead will be cut down in times of low output, and cut as low as possible. He will refer to this with pride in his annual statement, since overhead is regarded as a thing to be avoided as far as that can be done without lowering efficiency. That we should regard as not the attitude of any farmer who is to be an addition to the life of the community. He should at all times pride himself on the size of his overhead. We remain unmoved by the argument that the cost of the farm household is not overhead, but must come out of profits, just as must the household expense of the manager of a factory. That is nonsense. The factory can operate whether the manager is living in a cheap boarding house or in a mansion, and without any necessary change in its efficiency. The efficiency of the farm operations is inextricably linked with conditions in the farm home, and farm household expenses are overhead, the reduction of which is not desirable.

Raw materials are at first glance alike in both cases, but even here there is a vital difference. Any manu-

facturer can at a glance see how much he has taken from his stockpile and how much remains, and he knows precisely where he can replenish it and at what cost. The raw material of agriculture is, however, plant food from the soil, and its amount, its cost per item in the finished grain, and its replenishment are all matters too complex for measurement in figures. A man may farm his property profitably by extracting plant food annually without replenishment and actually improve its sale value—in some cases. He may farm it profitably and maintain the soil fertility, or profitably with lowering of soil fertility, or unprofitably with either maintenance or lowering of fertility. In any of these cases it may be impossible for even a group of trained scientists to say which is the condition, although in any case too heavy drafts on soil will ultimately end in destruction of its value.

To illustrate this contention by figures would be interesting, but impossible in a short discussion. We should have to wander into realms of plant physiology and soil bacteriology. It is enough to say that the art of agriculture is not yet so fully defined by scientific formulae that we can even tell the farmer exactly how he can maintain the fertility—as measured by productiveness for even a single crop—of any given field.

Labour is just as different in its importance in the two cases. Where the farm is operated by hired labour entirely this is not true; but farms are not so operated in enough cases in Western Canada to make this of importance. They are worked, at least in part, by the farmer himself, and by unpaid work by other members of the farm family. The manufacturer may pride himself on the low labour cost of the unit of production, but even the most efficient farmer may prefer a high

unit cost of cultivating some summer-fallow, if it enables him to keep at work a man who is very good at milking some prize cows, or a son who would otherwise be idle, or wander away to other employment.

This discussion of the difference in cost-keeping in factory and farm might be carried on indefinitely. Let us illustrate what we say by example. A most competent cost study of wheat production on a group of Saskatchewan farms is given in a recent bulletin. In justice to the compilers of the report we must note that they do not offer the figures as proving that farming is either profitable or unprofitable, but the report being typical of those on which such statements are based it will serve to illustrate our argument.

COST OF PRODUCTION PER BUSHEL OF WHEAT

Total Farm Expenses:	
General operating expenses	$2,606
Value of operator's labour	715
New buildings, livestock bought, and cash rent	217
Decrease in inventory	268
Interest on capital $24,643 at 6 per cent	1,479
Total expenses	$5,285
Total Farm Receipts:	
Wheat sales—4,763 bushels	$5,346
All other cash receipts	1,406
Increase in inventory	180
Total receipts	$6,932
Total expenses	$5,285
minus	
Receipts other than wheat sales	1,586
equals	
Cost of producing 4,763 bushels of wheat	3,699
Cost of producing wheat per bushel	$0.777
Received for 4,763 bushels of wheat	5,346
Selling price per bushel of wheat	$1.122
Profit per bushel of wheat	$0.345
Average bushels of wheat sold per acre	30.3
Cost of production per acre	$23.56
Profit per acre	$10.49

This study shows that 106 farms produced wheat at an average cost of 78 cents per bushel. As the report observes, this was based on a production of over 30 bushels per acre, which is some 12 bushels per acre more than the provincial average in that season. 104 of the farms average 151 acres of wheat each. On this basis a profit of $10.49 per acre of wheat was obtained after paying all farm expenses, and allowing 6 per cent on the average capital investment, and $715.00 as labour wages to each farmer in addition to free use of his house. From this $10.49 per acre he is to provide for his family, except that an item of $171.90 is included in general expense to cover unpaid labour. The selling price per bushel of wheat was $1.12.

Now the item of $715.00 for the farmer's wages was the average of the estimate placed by all the farmers in the study of their labour value. These estimates ranged from $300.00 to $2,000.00 per year. As the estimate goes down, so profits per acre go up, and vice versa. Also since wheat is the main crop, its cost is arrived at by deducting the sale price of all other crops from total expenses and distributing the balance over the wheat. That means that the more profitable other branches of farming were, the less the apparent cost per bushel of wheat would be, and vice versa. No allowance of any kind is made for raw material—the used soil fertility.

A similar estimate of the cost of producing toothpaste would be, per tube:

Fixed charges	$0.a
Overhead	$0.b
Raw material	$0.c
Labour	$0.d

and if toothpaste sells at 25 cents per tube the profit per tube would be $0.25—($0.a+b+c+d).

Do the two results mean the same thing? Do they equally portray the efficiency of toothpaste manufacture and wheat production, or the proportionate profit arising from the two occupations? Of course they do not. From the manufacturer's report we might easily decide whether toothpaste is a promising industry or not. From the farm report we can decide nothing of the kind.

The farm report simply says that the average farmer in the study spent on farming operations, including an allowance for his own and children's labour, $5,285.00. He received for his product $6,932.00. If we deduct $1,586.00 from each side of the ledger we find that the farm expense of producing wheat, if no other branch of the farm either gained or lost, was $3,699.00, and the selling price of the wheat was $5,346.00, or $1,647.00 over the cost, or if you prefer, that his total receipts over expenses were $1,647.00, plus $715.00 allowed for his own labour, plus $171.90 for his children's labour. Even if he is content that this is right, and does not merely mean that he has let the wheat have the benefit of his profit on a patch of potatoes, what is he going to do about it?

It is a poor argument for putting in another crop another year, because he has no reason to think that his production per acre will not next year be down to the provincial average, in which case, after corrections to allow for smaller harvesting costs, he will lose money. Or the market may drop and his average price per bushel be less than 78 cents. Nor, if he thinks that the total return is not sufficient to make wheat growing pay, is he likely to abandon it. He may have 45 bushels per acre next year, or wheat may net him $1.25.

This is where he differs from the manufacturer who,

if the cost is too high, most certainly will do something about the cost of raw material, or of labour, or overhead, or asking the bondholders to consent to a readjustment, or about raising the price, or who, if all these things fail, will very soon go out of business. The farmer will not buy a new car, or he will let the radio go back to the instalment house, or take the girls from school, or the boy from agricultural college, or farm a little less carefully and make bigger drafts on the soil.

The farmer's suspicion of cost figures is justified. They have a distinct value in making comparisons of various systems of farm management, or sizes of farms, although even in those cases their value is not as great as in a factory. When, as too often is the case, they are used to show that farming is a paying business, or the reverse, they are out of place.

The question of whether farming pays or not will never be answered by figures, except the figures showing how the population of a rural district increases, and improves its standard of living. The school enrolments are useful, because a contented and stable community increases in size, and best when the increase is natural.

What is the cost of growing wheat? Too high, or if you prefer, too low, for either is correct, if it is paid in hopeless struggle, or in misery for men and women, or in class hatred and the discontent of a whole people; too high or too low if it is to deplete the soil of its fertility to the danger point, or turn what should be a green and pleasant countryside into a desert; too high or too low if it is to mean an empty land, without human companionship in it. Neither too high nor too low if it serves to pay men and women enough to keep

them at work making a country, building homes, planting windbreaks, gardens and hedges, establishing schools, churches and villages.

What is the correct figure? How high can wheat go and still be sold, or how low can it go and not drive the farmer from his land? That cannot be answered. If unemployment should descend on the cities like a blight, farming could prosper with dollar wheat, for contentment is relative. The farmer must use some standard and he usually measures his contentment by the way in which other men and women live. Should the present wave of urban prosperity continue, wheat must go up in relative value or there will be too few hands to raise it.

The measures of agricultural prosperity are not to be found in figures. They deal with a basic human activity, not with a specialized industry creating some luxury that the race may have dispensed with successfully for thousands of years. A countryside where the average age of the farm population is increasing is becoming poorer, even if the savings accounts are swelling, for sooner or later men and women will die and someone must replace them. No increase in the average capital investment per farm will compensate if the boys and girls in the farmhouses are planning to escape to the city as soon as possible.

Agriculture is not an industry to be measured in dollars and cents. It is a biological activity—the attempt of the human race to better its adaptation to the planet. Its success is only possible if its practice tends to the physical, the intellectual and the moral betterment of the race. When the cost of raising wheat is at this point, it is right.

CHAPTER VI

THE INSPECTION AND GRADING OF WHEAT

THE generally accepted principle in Canada that the grading of agricultural products is a proper function of the Government had its inception in the struggles between producer and buyer which led in 1900 to the passing of the Manitoba Grain Act. That was expanded and amended in 1912 to become the Canada Grain Act, which was in turn radically amended in 1925, and to a smaller degree in later sessions of Parliament.

It is the charter of the wheat industry in all its branches, covering contractual relations affecting the grain from the moment it is brought by the producer to the original shipping point until it finally leaves Canada.

It establishes a Board of Grain Commissioners, three in number, with four assistant commissioners, who are charged with inspecting all grain produced in Canada, classifying it into grades according to market values, and issuing certificates of grade. They also make regulations controlling the operation of all elevators, and have jurisdiction over the allotment of cars to shippers.

Now the Grain Act affects the price received by every farmer for his wheat, since the grades established under it are accepted throughout the trade as the basis of payment for different qualities. As we have at various times remarked, in the end the interest of

the farmer in control of the grain trade in any of its parts is based on his desire to receive the highest price possible for his product. Naturally, therefore, the Grain Act has been the storm centre of every movement of farmers in the West. It has probably been oftener discussed in Parliament than any other part of the law of Canada; it has been the subject of numerous Royal Commissions and other investigations; and it seems destined to continue in this position.

It will be difficult to give even the briefest summary of the manifold provisions of the law, and totally impossible to trace the whole maze of controversy which has surrounded its various amendments. All that we can hope to do is to analyze its main provisions as they now exist, and to mention a few of the points in its drafting and enforcement which seem likely to be actively discussed in the near future.

Essentially it provides in the first instance four means by which a producer may place his grain in the primary storehouse—the country elevator. (A) He may sell it outright to the owner of the elevator, having agreed, willingly or under the stress of financial need, to accept the grade and percentage of dockage—content of weed seeds and other impurities which will later be removed in cleaning—established by the elevator operator, who is a paid employee of the purchaser, the owner of the elevator. (B) He may store it, as his own property, in the general bins of the elevator, accepting the operator's grade and dockage; in this case the wheat remains the producer's property, but since it has now lost its identity, he must accept in exchange a similar amount of wheat of the same grade, less the agreed dockage. That is, for all practical purposes he has constituted the owner of the elevator his

agent to forward this amount of a certain grade of wheat for sale. He receives a warehouse receipt to show how much grain he owns, and of what grade and dockage, and if he has more than a carload he may decide to surrender that receipt, load an equivalent amount of grain on a car and ship it to anyone to whom he wishes to sell it. Normally, however, he merely retains ownership because he hopes to sell it for more than is offered at that moment by the operator, and in the end he disposes of it by selling his warehouse receipt to some other person, or by instructing some commission dealer to sell that amount of wheat for him. (C) He may store it in the general bin, or sell it outright to the elevator owner, but without agreeing to the grade and dockage offered. In this case his status will be the same as under (A) if he sells, or as under (B) if he stores it, and he will obtain either cash or a warehouse receipt convertible into cash for the amount of the price according to the elevator operator's grade and dockage; in addition a sample of the grain will be sent to the government inspector, who will arbitrate the dispute, any increase in the grade or decrease in the dockage being then settled for by the elevator operator. (D) He may place it in a special bin—if the elevator has such accommodation available. In this case he remains owner of that grain, and the elevator owner must return it to him on demand, or load it on a car. Elaborate checks are provided to insure against substitution of inferior grain or failure to return the full amount, this latter being a difficult detail because of the shrinkage of grain in storage.

The charges for these various services are not to exceed two cents per bushel for the first fifteen days for grain stored as of agreed grade, or subject to grade

and dockage, or two and one-half cents per bushel for special binning. These charges include insurance against fire, and the cost of loading on cars for shipment. An additional charge is made of one-thirtieth of a cent per bushel per diem after the first fifteen days.

Should any ten farmers within a radius of twenty miles of any station apply for it, the railway company is bound to provide a loading platform, at which the producers of the district may, if they so desire, place their own grain in cars without passing it through an elevator. This can be done by any farmer who owns a carlot of grain, or who can agree with others to make a joint car for joint sale, or by dividing a car between two shippers by means of a bulkhead.

It will be noted that this divides grain into three classes at once—that sold under scheme A or C to the elevator owner, that stored under scheme B or C, and that which remains the property of the producer under scheme D, or by platform loading. Of these it is estimated that before the establishment of the Pool cash purchasing by the elevator owner absorbed over 50 per cent. of the crop, and as far as this grain is concerned the question of correctness of grading is not in issue, except as far as the later grading of grain for export or for sale to domestic millers may affect all grain prices—a question to be explored later. What has always been of interest here is the suspicion that elevator owners have taken advantage of the necessity which drove producers to immediate sale of their grain to pay less than a fair market value. Investigation by the Royal Commission of 1923-24 seemed to bear out this theory, but did not establish the existence of a combine of elevator owners to rob the producer systematically.

In the case of grain stored by the producer in either general or special bins and subject to later grading, the question of grading is of more direct concern.

Wheat is shipped in carloads to certain terminal points, and is there all sampled and the samples then inspected and the grades determined by the inspectors of the Board. Terminal points are Winnipeg and Calgary for wheat destined for the Head of the Lakes or Vancouver respectively; in addition the Government has provided interior terminal elevators at Moose Jaw, Saskatoon, Calgary and Edmonton, where sampling is also done. These interior terminal elevators were provided for the dual purpose of providing storage for wheat in times of car shortage, and to create stocks for the use of domestic milling. On the whole they are not used to capacity as car service is now ample, and domestic millers tend more to make direct purchase through their own country elevators or through other buyers. We elsewhere examine a suggested extension in their use as a result of the completion of the Hudson Bay Railway.

It is unnecessary to describe the operation of sampling in detail. Controversy has never affected the method used, although there has been much irritation over inability of the samplers to do their work thoroughly in the case of overloaded cars. It is of course desirable that sampling should be done as early as possible in the movement of the grain, so as to permit appeal from the decision of the inspector if the producer is dissatisfied, and before the grain has been lost in the bins of the great terminal elevators. Where overloading makes fair sampling impossible, the fact is recorded, and the car sampled at the time of unloading at the terminal. This practice tends to increase for

obvious economic reasons, but any ill effects will be corrected by the use of a new automatic sampler which catches correct samples during the unloading of cars.

After inspection wheat is ready for sale and is normally forwarded at once to a public terminal elevator at Vancouver or the Head of the Lakes if still unsold by the producer; what has been already bought by dealers may be sent to public terminal elevators or to their own terminal elevators. The grain purchased outright by private elevator owners is theirs, and can be placed by them, or other parties to whom it may be sold, in any terminal elevator, or otherwise disposed of as seems fit. Grain, however, that has been stored by the producer in a country elevator, or loaded over a platform is in a different position. The platform loadings are easily handled, since they are actually billed and shipped by the producer, and the same thing is true of special-binned grain. Grain, however, that is in the general bins of country elevators but still owned by the producer is not wholly in his control. For obvious reasons of operating efficiency the elevator operator must have the power to load and forward it at his discretion. In all cases the shipper of grain is supposed to have the decision as to its destination and place of storage while it remains his property, even although he may have authorized some commission house to sell it for him. This point has been the subject of much controversy, but the present state of the law seems satisfactory, although frequent complaints are made that its intent is evaded, by the selecting of cars en route by millers or others who find their contents of exceptional quality and purchase them to be diverted from their original destination.

At this point we approach the vexed questions of

diversion and mixing, so we must turn aside long enough to learn how the diversion of grain into various grades is decided.

The Western spring wheat grades known as Manitoba No. 1 Hard, and Manitoba Nos. 1, 2 and 3 Northern are defined in the Act. The wording as affecting No. 1 Hard is that it "shall include all varieties of hard red spring wheat equal in value to Marquis wheat; shall be sound and well-cleaned, weighing not less than 62 pounds to the bushel; shall contain 75 per cent. of hard red vitreous kernels." The definitions of the other statutory grades use the same terminology, No. 1 Northern to be "equal in value to Marquis," weighing not less than 60 pounds to the bushel, and containing 60 per cent. hard red vitreous kernels; No. 2 Northern equal in value to Marquis, weighing not less than 58 pounds to the bushel, and to contain 45 per cent. hard red vitreous kernels, or may be composed of soft red spring wheat weighing not less than 60 lbs. to the bushel and containing 60 per cent. red kernels, and may contain up to one per cent. Amber or Red Durum wheat; No. 3 Northern to be red spring wheat excluded from preceding grades on account of damage; reasonably sound and clean, of fair milling quality weighing not less than 57 lbs. to the bushel, and may contain 3 per cent. Amber or Red Durum. In addition provision is made for the use of the same grades with the addition of the word "Scoured" for wheat that has been scoured to remove smut, or of the word "Dried" after being dried.

Similar grades are provided for Winter wheat and for Amber and Red Durum and for Kota.

The Act further provides for establishment by the Board of commercial grades to meet "climatic or other

conditions which result in the production of a considerable proportion of grain not capable of being included in the classification provided for under this Act," these grades to be defined by standard samples selected for that purpose, each crop year.

It will be noted that none of these definitions can be considered as scientific, or capable of interpretation without the use of individual judgment. In addition, it was soon found that certain grades would be produced by "climatic or other conditions" in every year, in addition to the statutory grades. In consequence it is accurate to say that grading has become a much more elaborate process than the wording of the Act would seem to contemplate and that a whole system of grades has been created, by which the inspectors are guided, a system which changes slightly from year to year, but is on the whole almost permanent. No official recognition of this fact is to be found, since the law provides for four grades established by definition, and others by sample selected annually, but so generally is the existence of a whole code of grading acknowledged that booklets codifying the entire range of grades in any year may be purchased from reputable private publishing companies.

Now it is so plain that the whole matter of grading is one of the judgment of individuals in the application of standards of colour, or surface texture, and of other factors not defined by scientific tests, that it is to be expected that in periods of general economic discontent the producers—whose very income depends on the grade of their grain—would occasionally protest that grading was being badly done. On the whole these protests, and the less frequent suggestion of actual corruption of the inspection service, have been dismissed

as unfounded by various Royal Commissions. It may, we feel, be accepted that the grain inspection service of the Board of Grain Commissioners provides even, just and accurate grading of the commodity which they handle.

Grading does not, however, stop with the entrance of the wheat to a terminal elevator. It must also be graded out, if the second purpose of government inspection is to be fulfilled, and in addition to protecting the producer from exploitation by the buyer the quality of Canadian wheat in the markets of the world is to be kept uniform and worthy of its reputation, and so every shipment loaded at Pacific Coast ports or the Head of the Lakes must again be graded.

It will be noted that the Act in defining statutory grades refers to cleaning and drying, and indeed suggests—when it states that wheat inspected orginally as No. 3 Northern scoured or lower may be graded in such regular grade not higher than No. 3 as the inspector determines, and again when it states that wheat after drying may be graded as of the grade to which it belongs, or as straight grade in the discretion of the inspector—that the processes of cleaning and drying may lead to a placing of wheat in a higher grade than that determined at its inspection before entering the terminal elevator.

Inevitably that has occurred, and inevitably the consequence has been that every terminal elevator has turned out wheat of various grades in amounts differing from the proportions of those grades which have come in. Only mild objection is made to that in the case of terminal elevators operated subject to the direct supervision of the Board. In addition to these there however exists another class of terminal elevator,

the "private elevators" owned and operated by the private dealers in grain, and handling grain which has been purchased by them and is their property. It is entirely obvious that it would be the part of plain business men in such a situation to undertake cleaning, drying, mixing or other treatment of wheat which would result in their selling the outturn of their elevators at a higher price than if they merely passed out the wheat as it came in.

This brings us back to the questions of diversion and mixing. The producer sees his grain, which left him graded as say No. 4, taken en route by a buyer who believes that he can by treating or blending it, sell all or part of it as No. 3. He feels that by that another makes the profit to which he is entitled, and is apt to doubt the efficiency of an inspection system which makes it possible. It is true that he has the power if he still owns the wheat to have it sent to a public terminal elevator, where at least any profit made from the treatment or mixing of his wheat will not be due to the superior shrewdness of the man who buys his car en route, or better still, to a Government elevator, when the profit will go to the state. That, however, is not what he wants. He is seeking a system by which any profit that can be made out of his product—as long as it remains wheat—will be returned to him.

In addition, he is concerned about the accuracy of grading as it affects the selling price of his grain abroad in general, and thus the entire price of the crop. He has heard complaints as to the quality of Canadian grain abroad. That may, he sees at once, be due to mixing of grades.

No grading of wheat can be precise—even if made by scientific methods. Each grade must include all the

wheat between certain upper and lower limits, and those limits must be fairly generous in the grading of an organic material. If then the custom is general for all the wheat in the upper portion of one grade to be taken out and used for blending with the lower portion of the next higher grade so as to produce a mixture which will barely enter the higher grade, the effect will obviously be to make the meaning of grades different to what it otherwise would be. No. 1 under those circumstances will be all at or barely about the lower limits of its tolerance, instead of averaging somewhere about the middle of those limits. The effect will be to lower the foreign importer's valuation of a No. 1 Canadian certificate.

A long and bitter controversy has been waged around this question and many attempts have been made to find a solution. The arguments of the producer are obviously correct, and are backed by a voting strength sufficient to impress the Government which must in the end decide the matter. On the other hand, the men who are engaged in mixing are not without grounds of defence. They say that the Canadian grain trade as a whole benefits by the practice. First, they show that while differences in quality within a grade proceed by minute stages, prices by grades change only at the lower limit of each grade, and argue from that a practice which lifts a whole mass of No. 2 wheat into No. 1 grade must in the end mean a higher total sale price for the crop. They argue that it may lower the average value of any grade, but that it actually tends to the more exact definition of grades. They point out that in any year climatic conditions are going to determine the average point of quality of any grade with reference to its upper and lower limits, and that

one year No. 1 Northern may, as graded by first inspection, actually be of more value per bushel than another year. They insist that under the mixing system this is to some extent avoided, and all grain tends to come year by year and in each grade closer to a definite standard. That standard may be at the lower edge of the grade, but as its effect becomes more complete, the foreign market will learn to expect No. 1 Northern to be always at the lower limit of the grade, and will value it and pay for it accordingly. Without mixing they say a varying quantity of unpaid-for quality is each year given to the foreign buyer, who far from appreciating the fact that in some years his whole purchases of No. 1 Northern are close to the top of the grade, will next year, when climatic conditions bring the quality of the same grade close on the whole to its lower limits, resent the change. Under mixing on a large and general scale the foreign buyer will in the end be better content.

In addition they argue that mixing will always be practised, since the foreign miller is at all times trying to keep his flour at an even point of quality and will merely correct differences of quality within the limits of the grade by adding more of other wheats when the grade is running high, or using more high grade Canadian grain when the grade is averaging low. That is, to abandon mixing is to transfer the profits from it to foreign countries.

At present mixing is a standard practice, used by the Pool as well as by private companies, and limited only by the somewhat dubious expedient of attempting to hold private elevators to a different standard from that imposed on public terminals in the matter of quality of outturn. In the case of public terminals the outturn

is graded by the usual standards, while private elevators are held to a sample of each grade which is a composite of the wheat of that grade which they have received. This is obviously a clumsy and unscientific expedient.

The 1929 amendment to the Grain Act rules that the outturn of all terminal elevators shall be held to a point where each grade will contain 75 per cent. of the average of the grade, and 25 per cent. of the minimum of the grade at primary inspection points. The feasibility of applying this standard is at issue, and at best it only constitutes an attempt to limit mixing without deciding whether it is good or bad.

To further complicate the question there has been the further allegation that mixing of grades after the issue of a final certificate is practised at Montreal, and at American ports of shipment. Since this mixing, if and when it occurs, is after the final inspection of the wheat, it is obvious that its practice, and the forwarding to the foreign importer of wheat thus mixed, but still accompanied by a final inspection certificate issued for a parcel of wheat at the time it left the Head of the Lakes, is improper to the last degree, and would inevitably weaken confidence abroad in Canadian certificates. Fortunately it has been proved that this practice is successfully guarded against.

It appears then that dissatisfaction with the present system of inspection is common among producers. It takes the form described above, and also the opposite form of questioning whether much wheat of high value is not being given unnecessarily low grading because of too rigid adherence to standards of colour and appearance. Milling value, it is alleged, is defined by certain definite chemical and physical qualities, and it

is possible that a little shrinking or wrinkling from frost, or a little too high content of moisture, or slight failure to compare exactly in colour with the accepted standard of the grade, may result under the present system in the producer receiving too low a price. It is suggested that protein content is the correct standard and that tests for it should constitute a part of the grading system. That is a highly technical question, and one which brings in difficulties such as the time required to make the test as well as the possibility that quality of protein affects milling value in addition to quantity of protein. The adoption of some such system would assuredly add definiteness to inspection methods, and the present investigations into it being carried on by competent scientists may solve a great problem. It is impossible to say more than this at the moment.

Recently and as the result of a frank attack on the former Board of Grain Commissioners, they have been replaced by new appointees, who are unquestionably men most admirably suited for their task. That they will aid in making inspection more satisfactory to all the interests concerned can not be doubted, but it is not the solution of many of these questions, since it is still possible for even men of their competence, and in rigid adherence to the oath of office which they take, to find themselves the target of attack and the objects of suspicion as long as the situation continues as illogical as it has been and now is, and for this reason we feel that the time has come to explore the very foundations of the system, in order to see if perhaps there does not exist there some fatal defect.

In the first place the Act, as interpreted and administered at present, aims at an almost unattainable ideal.

It attempts to provide a system by which not only will the producer have a fair judgment of the quality of his grain to fix the price at which it is sold, and not only will the consumer abroad be given the assurance that a Canadian certificate means something definite, but also that the two results will be linked in such a way that the price paid for a shipload of grain on its arrival at Liverpool will be the basis on which the producers whose grain is in the shipment are paid. That is wholly impossible. It can only be accomplished by shipping each producer's grain as an individual package—obviously a ridiculous suggestion.

Yet that that is the point to which present attempts to make grading more satisfactory to the producer all tend is proved by the fact that every effort made to provide an inspection and grading system that will be acceptable to the producer has ended in a multiplication of grades.

Next, the investigations conducted by various Royal Commissions have not gone to the root of the difficulty. We have not in mind to question the competence and sincerity of the many distinguished men who have served on these bodies; a mere list of their names would be sufficient to refute such a doubt; nor do we suggest that any possible avenue of investigation was missed, for the reports in every case reflect minute scrutiny of all information available, and the most industrious study; nor again do we question the accuracy of the deductions drawn by men of trained intelligence and great original knowledge of their subject from the evidence submitted to them. We suggest that the terms of the reference have in every case been unfair to the commissioners.

We do not pretend to have studied the various actual

commissions issued by Order-in-Council. We know the circumstances in which the commissions were issued. They sprang in every case from an outspoken discontent with the present system of grading and the alleged abuses which were practised under it—a discontent in every case voiced in the form of explicit and formal demand for specific changes in the Act. The Royal Commissions were not to study how best wheat should be graded, but to suggest after due study and consideration, how the Grain Act might be amended to correct specific abuses alleged by individuals.

In the matter of mixing, which is in the end the subject of greatest interest, these complaints are often based on the assumption that the standards of Canadian inspection and grading affect the price of wheat in the world market exactly as they do the price that the producer obtains in the first instance. That assumption is not warranted by the facts. The marketing of wheat in Britain is not the closely regulated proceeding that it is in Canada. The crop of the whole world is being poured into the country. The wheat of Canada and the United States is sold usually under a contract which provides that the Canadian or American certificate shall establish the grade. Wheat from the Argentine or Australia is sold by the "fair average quality" contract, which only provides that it shall be about of the quality of the run of that grade of Argentinian or Australian wheat of the current crop, the almost inevitable disputes arising to be settled by arbitration. The purchasing is not all, or even nearly all, done on an exchange and by exchange rules.

In such circumstances, while the Canadian certificate of grade is most valuable, and nothing should be permitted to lower its value in the eyes of the buyer,

it does not, as it would in the Winnipeg market, automatically replace a sample. It merely adds confidence that the sample is a correct one, and the parcel of good quality throughout. The investigations made by Dean Rutherford in Britain, as a member of the Royal Commission appointed in 1923, brought this out most clearly. Buyers were discussing the alleged falling off in the quality of shipments from Atlantic ports, and argued that they were justified in paying higher prices for shipments officially certified to be of the same grade but coming via Vancouver. Imagine the same condition on the Winnipeg market, and buying of wheat to be placed in the terminal warehouses being conducted on a system which took into consideration not only the inspector's certificate, but the district of origin of the wheat, and some idea will be obtained of the fallacy of assuming that the Canadian certificate has equal validity in Canada and in Britain.

In any case we doubt the possibility of any premium paid for extra quality of a parcel of wheat being reflected back to the producer when the premium is paid in a foreign market. Wheat, by the time it reaches a foreign miller, may have passed through many hands—those of a grain buyer in Canada, of a grain exporting house in Montreal or New York, and of an importer in Britain. Which of these received the premium? And how was it returned to the producer?

The statement that a buyer pays more or less for any commodity because of quality is only a partial truth; he pays for superior quality if the seller also realizes that the superiority is there, and only if the relation of demand and supply in that special grade makes it advisable. Any seller of Canadian wheat can obtain a premium, if he knows that the parcel he is offering has

extra quality and he finds a buyer who needs that. For this reason it is accurate to say that No. 1 Hard brings a premium over No. 2 Northern because of extra quality. To say that extra quality within the grade will automatically bring a premium is not necessarily true, for unless both seller and buyer agree to that arrangement, it will not be made. Thus the farmer who sold his wheat on agreed grade and dockage, or the grain dealer in Winnipeg who sold it in turn on inspector's certificate, or the grain exporting house in New York who again sold it as of a certain grade may none of them be able to obtain a premium, while the last seller of the parcel to a miller may.

Therefore the belief that quality automatically brings a premium, and that the premium will be returned to the producer is not sound, even when supported by evidence that British millers do pay more for extra quality within the grade.

In the special case of the Pool it is possible for all premiums paid for extra quality within the grade to be returned to the producer when Pool sales are made actually to final users of the raw grain, but it is not a general truth that any attempted linking of original and final inspection will enable the producer who has sold his wheat to benefit from premiums.

We incline to the belief that the time has come to attack this basic fallacy in the discussion of the subject, and to suggest that the grading and certificating of wheat for export should be divided into its two entirely distinct parts. The present system should be applied in order to obtain the grade on which the producer is to sell his grain; another and entirely new inspection should be applied to wheat when it is sold for export. The second inspection might well be applied

when the wheat is placed in the ship in which it is to move overseas. Incidentally refusal to grant such a certificate, except to wheat moving entirely by Canadian channels of transportation, might remove the danger of tampering with Canadian grading in the United States ports and might also stimulate the movement of Canadian grain by the all-Canadian route—care being taken first to ascertain and weigh the very probable evil effect on the marketing of wheat of any limitation of freedom of choice of routes. In any event certain obvious and simple precautions would be applied to prevent the dilution of Western grades by admixture of Ontario or foreign wheat.

Now from the standpoint of the foreign importer this would leave nothing to be desired. The inspection service will be guided by statutory provisions or official samples in establishing the grade, and if competently directed, there is no reason for any doubt to occur of the honesty of their work. It would tend to permanent uniformity of the grading of export shipments, and remove the conditions quoted by Dean Rutherford, which might have been the result of too low grading, too little mixing, or too much temporary excess in quality of the wheat moving via Vancouver exactly as well as the result of too high grading, too much mixing, or temporary falling off in original quality of the wheat moving by the Eastern route; or to put it in another way, that the Canadian was getting too little for Vancouver shipments rather than that the importer was being cheated on Montreal shipments.

What Europe wants is assurance that Canadian certificates of quality mean something definite, and under such a system that would be attained as perfectly as is possible.

Under such a rule mixing would be permitted to any degree which would not permit it to lower confidence in the meaning of the Canadian certificate, thus assuring absolute liberty to the shipper to do whatever he honestly could to obtain a better price for his product, with the result that wheat when finally exported would tend to be as far as possible of the highest uniformity in grade—always as near as possible to the lower limit of the grade—and to be graded with as little reference as possible to "climatic and other conditions" in its production and solely so as to suit the requirements of the market to which it is to go.

Let us explicitly acknowledge that mixing may be so conducted as to defeat the object of grading. Wheat that is bin-burnt or cleaned of smut may be placed in standard grades, pass the inspector, and still not be of proper milling quality. Practices of this sort are forbidden by the Act at present, and further steps might justly be taken to limit them. In addition any mixing which might result in essentially affecting the value to the purchaser of the Canadian certificate should be forbidden.

Since mixing has come to be regarded with abhorrence we must defend our willingness to accept it as standard practice even within limits by referring to an influence which has greatly changed the situation—especially since the sitting of the Royal Commission appointed in 1923—the coming of the Pool.

A member of the Pool has much greater reason to accept grading decisions with equanimity than a non-member. He does not sell his wheat to the elevator owner, but stores it for sale in each case. In addition he knows that an error in giving his product too low a grade will not enrich a private buyer, but the Pool,

and at the worst all that will happen is that he will receive a little less for his crop and every other Pool member a little more than is exactly right. The Pool elevator operator is as human as the agent of a private buyer, and as prone to error, or to unfairness, but he is not in the position of being able to please his employers by systematic under-grading of wheat, as the Pool cannot gain thereby. The Pool management is moved by a constant desire to pay its membership as much as possible. Thus the system of grading which was found to be on the whole, and by every Royal Commission, of high efficiency and accuracy, and which could never be attacked except on the vague suspicion that it might favour the buyer as against the producer, is assuredly good enough to fulfil the simple duty of holding the scales even as between individual Pool members—for that is all that it now has to accomplish.

The wheat having been pooled, it is obvious that it is to the best interests of all concerned that it should be sold for as great a total price as possible, and that no methods of improving the grade or increasing the average grading of the whole crop should be missed. Mixing may—although in our opinion improbably—be used by private dealers in grain in such a way as to prevent the producer obtaining the full value of his wheat; in the case of the Pool the very arguments to that effect would be arguments for its employment in the interest of the producer.

Indeed we may go farther, and suggest that the time has come to place the responsibility for the grading of grain on those concerned and not on the general government of the country. There was a time when it must be conducted by the state in order to assure to the producer equitable treatment. The creation of the

Pool removes danger in that direction—for any producer can join it. From the standpoint of foreign trade we have tried to show that all that is required is the enforcement of standards of grading in the permanence of which the buyer can have confidence. It is to be assumed that those who sell the grain of Western Canada—especially those who do so as the direct agents of the producer—are wise and farseeing enough to do nothing which might impair that confidence.

The time has probably come to consider taking the definition of grades of Canadian grain out of the hands of the national Parliament, and placing them as a responsibility on the men who produce and sell the crop. For safety there is no reason why the Board of Grain Commissioners should not be left as Government appointees, but there is reason to feel that detailed control of their actions, and the framing of all except the most general of their regulations would be better placed in the hands of some body representing the producers and the grain trade—a body on which the Pool can fully represent the interests of the producer.

In any event the time has assuredly arrived for an end of the long war of words which has been waged around the Grain Act. In its present form it possibly contains too much in the way of restriction—certainly not too little. It may prove possible to operate inspection and grading under it as it stands with greater satisfaction to the producer, now that he has the Pool to assure him of intelligent and powerful representation; at least the attempt should be made, and the position definitely established that any changes in the Act found urgently necessary should be in the direction of greater flexibility rather than in that of closer definition and finer restrictions.

The objects of grading are well known. Those of interest to the buyer are obvious—the assurance of quality, uniform and unchanging as possible, and a division into grades which will as far as possible reflect the factors which differentiate various parcels of wheat from the standpoint of the miller. The seller of wheat would be foolish not to insist on the maintenance of standards which please the buyer; those standards should be arrived at by conferences between producer and consumer. At them there should be first, a decision as to the division of wheat into grades that the miller can accept, and second, discussion of every possible avenue by which shrewd dealers might evade the inspector. If mixing can be conducted under such regulation that its existence will not lower the buyer's confidence in the Canadian certificate, its practice should be permitted, as tending actually to better and closer grading. If this is impossible, then mixing should be wholly prohibited.

The decision is not, however, one to be arrived at in our opinion through debates in the national legislature but by conference between seller and buyer. Up to recent times such conferences might not have included full representation of the interests of the producers, but under present conditions the producer will be present through the Pool, and it is inconceivable that any council attempting to define grades of Canadian wheat and methods of grading should fail to listen attentively to the arguments of over half the farmers of Western Canada concerning the sale of their product.

The duty of the Government of Canada is to protect the interests of this great national industry, and first of all the interests of the producer. He should be

encouraged to protect his own interests. If he can, while satisfying the demands of the consumer, gain profit from mixing, he should be permitted to practise it.

To attempt, however, to pursue further the abortive efforts of the past in the direction of trying to ensure that the final price paid for a parcel of wheat at Liverpool be divided between the growers of that wheat is to our mind a waste of time. It would be far better that each producer should be assured of the fairest practicable grading of his wheat as compared with that of his neighbours, and should later participate in any profits which may be made by skill in blending or in treatment. The existence of the Pool assures to every producer the right to place himself in that position, and its creation completely changes the situation.

The Pool is the Western grain-grower's assertion that he is capable of handling his own business, and it is highly important that he should learn to feel confidence in its ability to take responsibility. The time has come for a cessation of attempts at too paternal a supervision of the interests of a group who have shown themselves well able to provide for their own protection.

CHAPTER VII

ELEVATORS, TRAINS AND SHIPS

ON THE comparatively bare sweep of the Prairie perhaps the most typical object is the grain elevator, whose towering bulk, standing alone, or grouped with several others in a close rank, remains in the mind of the visitor when he has forgotten much more exciting and interesting spectacles.

Wheat after threshing is one of the most fluid of all staple products, almost liquid in its ease of handling. Older communities have always handled it in small packages, because of the type of transport mechanism that must handle it later, and even in modern wheat countries it is still bagged for shipment. In North America, however, the application of purely mechanical devices to the movement of materials is very highly developed, and was early employed in the case of wheat.

It reaches perfection in this case. Wheat is brought loose to the elevator in a wagon box, and is from there lifted aloft by an endless chain of buckets, and dumped in bins. From those in turn it is removed by gravity, or by other bucket chains, and poured into freight cars, which in turn carry it to still other elevators, where it is stored, mixed, cleaned, moved from bin to bin, and finally poured into the hold of a ship, always fluid, always in bulk, and almost without the use of hand labour.

Elevator design and construction have been carried

to a high pitch of perfection, and constitute a very important branch of engineering.

The end has been that in Canada—even more than in the United States where the scattered nature of wheat production and the greater range of types have interfered—the mechanism for the handling of the Western crop is a complete and highly organized whole, including some 5,400 country elevators, with a total bin capacity of well over 180,000,000 bushels; public elevators about 38 in number, holding 90,000,000 bushels; private terminal elevators over 80 in number, to contain nearly 90,000,000 bushels; 41,000 miles of railway—all used to a greater or less extent for the trade in wheat; 50,000 freight cars used in the movement of the grain crop at its peak, and many of them held in reserve at other times for that special duty; and a fleet of some 600 ships normally intended specifically for the transfer of grain on the inland waters.

This system has been created partly by private enterprise, in order to share in the profits of this commerce, partly by public authority as a contribution to the development of the country, and in part by the association of producers in their own interest. It is of tremendous economic importance to the producer. It handles his product at lower cost than is possible in competing areas, thus always encouraging buyers to seek his supply; it frees him to a great extent from the necessity of providing his own storage capacity, and it places him in a unique position of advantage in bargaining for the sale of his product.

We do not endorse the belief that has been so general that cost of production and transport necessarily give the producer in the countries where they are

lowest an advantage, and point out that on the contrary the farmer in the Argentine usually gets less per bushel for his wheat at the farm than the Canadian, and on this point we may stress the fact that the Canadian is only able to bargain better than others because of his possession of this uniquely complete and comprehensive storage system.

In the Argentine or Australia wheat must move to market as soon as it is threshed, or be stored by the farmer at his own expense, a high cost if it is done by primitive hand methods of handling. Thus from the moment that wheat begins to trickle from the earliest threshing the buyer in those countries knows that he is in a position of advantage. The wheat must be sold. It is not only a case of the lack of country elevators for primary storage; the same difference persists all through. Figures to illustrate this advantage of the Canadian producer are not available, but the difference in conditions is generally known.

It is easy to see from them that the Canadian producer, with his tremendous advantage in storage capacity, is in a much better strategic position in the marketing of his grain.

This is a matter of vital importance too often forgotten. It is at least one of the reasons for the success of the Pool, and for the greater difficulties experienced in organizing co-operative sale of wheat in other countries. The Pool, it is true, has on a very large scale contributed its own elevator capacity, both at country shipping points, and also at terminals, but even in its first inception the system as a whole was there and available. The possibility of Pool sale of wheat must be attributed in part at least to the earlier efforts for the building of co-operative elevator systems, but

also to generous provision of this necessary public service by the national Government, and by the enterprise of private individuals and corporations. Without the whole system of private trading in grain that early in the history of the West provided a complete chain of transportation, of marketing and storage, the later efforts of the producers to carry on some of these functions on their own behalf would have been made much more difficult.

The division of elevators into country, public terminal and private—which for clarity we prefer to call private terminal—is made by law. The Grain Act describes a country elevator as one which receives grain for storage before it has been inspected under the Act, and which is situated so as to have railway facilities available. It is bound to receive grain from all producers; to insure the grain while in its possession; to give proper warehouse receipts for grain; and to deliver the grain into cars when the railway company, at the request of the shipper, shall furnish them. The arrangements as to ownership of grain while on hand may differ, and are described in the chapter on the inspection and grading of grain.

A country elevator to hold 30,000 bushels is a building about 32 by 33 feet, and some 80 feet high, of wooden construction, on concrete foundations, and covered with wood or galvanized iron. It is divided into bins, served by mechanism for the hoisting and distributing of grain, and with its approaches and out-buildings occupies some 100 feet square. It costs about $13,500, or if equipped with grain-cleaning machinery, some $17,500.

There are about 5,400 at present; construction goes on too rapidly to make it useful to be exact or to give

exact distribution. Also ownership changes too frequently to make statistics on that point very useful, but it may be said that the present figures in the three provinces show a division into some 1,600 Pool elevators and 3,800 owned by private companies.

It may also be useful to know that the largest private company owns 363 country elevators, and the next ten largest 1,300 between them. The United Grain Growers, Limited, owns 417.

Country elevators have not generally undertaken the cleaning of grain in the past, but the increasing difficulty in producing clean grain in the older areas has led to many of those in Manitoba being equipped with cleaning machinery, while it is expected that this custom will gradually be extended to Saskatchewan and Alberta. Cleaning, of course, saves freight charges on foreign material extracted, and also aids in better grading. The highly efficient modern equipment at the terminal elevators is still depended on for final cleaning.

Public terminal elevators are defined in the Act as being those which receive grain for storage (for the account of the shipper) after it has been inspected. A list of them in the Western Inspection Division follows:

Place	Owner	Capacity
Vancouver	Panama Pacific Grain Terminals Ltd.	1,000,000 bushels
	Pacific Terminal Elevator Co. Ltd.	2,100,000 "
Calgary	Dominion Government	2,500,000 "
Edmonton	Dominion Government	2,500,000 "
Moose Jaw	Dominion Government	3,500,000 "
Saskatoon	Dominion Government	3,500,000 "
Fort William	Grand Trunk Pacific Elevator Co. Ltd.	5,750,000 "
Port Arthur	Dominion Government	3,250,000 "
	Saskatchewan Pool	6,500,000 "
	Saskatchewan Pool	7,398,000 "

Much misunderstanding exists as to the term "public terminal". It is true that some of them are provided by the national Government, but that does not make them public in the sense of the word as here used. Here it refers to their function, and an elevator owned by a private company is public if engaged in the receipt, storage and handling of grain for any shipper who wishes these services. It is licensed and supervised by the Board of Grain Commissioners.

Elevators intended to receive grain in transit, such as those at Georgian Bay ports, Port Colborne, Buffalo, Montreal, Quebec and the Maritime ports, are known as public elevators when not owned and operated by one concern for its own grain. They may be owned by the various Boards of Harbour Commissioners, the Pools, the railways, or by private concerns, but all operate under license from the Board of Grain Commissioners, and at the charges laid down by them. They are located at strategic points on the route of grain to the sea, approximate present capacities being: Georgian Bay ports, 15,400,000 bushels; Toronto, 2,350,000; Kingston, 250,000; Port Colborne, 3,500,000; Montreal, 13,310,000; Quebec, 4,000,000; St. John, 2,200,000; Halifax, 1,500,000.

Those at Buffalo and other American ports play a part in the handling of Canadian grain, and there is a Pool elevator at Buffalo, but it is useless to attempt any detailed listing of these.

It may be noted at this point that the public terminal elevators at Moose Jaw, Saskatoon, Calgary and Edmonton are known as interior public terminals, and are intended to serve only as emergency storage points in times of car shortage, or to stock grain for local use. A possible extension of use for some of them has been

suggested as a result of the opening of the Hudson Bay Railway. It is discussed elsewhere.

There remain then the private terminal elevators, constructed or acquired by private grain companies, or the Pool, to serve as their own storehouses. Before the coming of the Pool the tendency was to provide public terminal facilities, on the theory that the producer who desired to ship his own grain and not sell it at the country elevator should have facilities, but the existence of the Pool has made it unnecessary to do this, as a great deal of the grain formerly shipped by the producer is now sold through the Pool, and as a result the tendency is for the conversion of public terminals into private elevators.

Private terminal elevator capacity is as follows: Fort William, 31,000,000 bushels; Port Arthur, 32,725,000; New Westminster and Vancouver, 9,757,000; and Prince Rupert, 1,250,000. In addition the Board of Grain Commissioners licenses a large number of elevators for companies engaged chiefly in milling, some of them being nominally private terminals, and the rest manufacturers' elevators, but none of them of importance to the general movement of grain for export.

The great terminal elevators are buildings of a most impressive type, massively constructed, and indeed possess a definite beauty of their own. They are provided with every device which can assist in the economical handling, storage or treatment of grain. Their cost is immense—elevator No. 7 of the Saskatchewan Pool at Port Arthur costing $4,000,000, and having a capacity of 6,900,000 bushels.

It is obvious that elevator accommodation is one of the attractions that any grain route must possess in order to share in this commerce, and it is the ambition

of every seaport to be well-equipped in this regard. Other factors are, however, too powerful to make the mere existence of elevator accommodation at a port enough to create a large flow of grain, and several of those listed have failed to find economic use.

In addition to the elevator, shipping of wheat from country points is done by means of a loading platform, which must by law be provided free of charge by a railway company on the demand of a certain number of the neighbouring farmers. This system is specially favoured in some districts of Manitoba, and is suited to producers who can ship a carload or more of grain, and who thus avoid the necessity of mixing their grain before inspection with that of others, without the need of paying for a "special bin", which is not always available.

The country elevator represents an economic anomaly. The standard custom of transportation companies is to furnish warehouses for the custody of shippers' produce, at the primary point where it is turned over to them, and also at points where assembly of goods for marketing or for reshipment is customary. The first transcontinental railway was, however, unable to finance storage facilities of this special and costly type and on the scale required, and early in its history met the need by offering free sites to those who would provide them. Naturally the tendency was for this opportunity to be used by those who wished to purchase grain.

The provision of a code of law to regulate the commerce in grain recognized the existence of the elevator as a combination of private trader's warehouse and public utility, and not a little of the difficulty encountered in making the code satisfactory in operation has

arisen from this duality of function. Most of the wheat turned over to the elevators is sold outright to the owner of the elevator, but a considerable amount remains the property of the producer, although lack of special binning facilities, and unwillingness of shippers to pay for this service, mean that most of this in turn will be mixed in the general bins of the elevator with wheat which has passed out of the producers' hands. The effect of this peculiar state of affairs is dealt with in the chapter on inspection and grading. It involves the retention by producers of an equity in the whole mingled mass of grain from Western Canada, and this has been responsible for keener interest in the fate of the whole crop than would otherwise have been evinced. It has been good so far as it has encouraged interest in the ultimate marketing of their product, but has done harm by inducing producers to imagine that some system could be created by which the mingling of the whole crop could be prevented from finally ending the producer's right to participate in its final sale price. It is out of this that has arisen the erroneous view that the sale price of a parcel of wheat on its arrival in Britain might be distributed between the growers of the wheat, and the whole controversy over mixing, carried finally to the enactment of a law providing that the private firm owning wheat by outright purchase should be forced to sell it, not only by legal grade, but by a refinement of grading which controls the position that each parcel of wheat must occupy between the upper and lower limits of tolerance of the grade.

The system is now too firmly established to attempt to alter it. It would inevitably continue to provide a fruitful source of useless argument, but for the change involved by the creation of the Pool, which provides

its own elevator capacity. In that case the anomaly is removed, and we have substituted for the dual position of private buyer and public utility, the single one of producer doing his own warehousing. Perhaps this will tend to a clearer view of the truth of the situation.

Between country elevator and terminal, wheat moves in bulk in carloads, that being the official inspection unit. That involves the existence of over 20,000 miles of total rail trackage between Port Arthur and Vancouver and Prince Rupert. It is a magnificent system, well constructed and maintained in excellent condition. It includes not only the seemingly endless miles winding over the Prairie which so impress the traveller, but the audacious engineering feats which carry the roads through the sea of mountains on the West, and along narrow shelves perched high on the side of the canyons through which turbulent rivers wind their way to the Pacific. It is provided with terminal facilities which can be measured by the fact that the Winnipeg yards of the Canadian Pacific alone are gridironed with three hundred and thirty miles of track.

It is served by a veritable army of men, the railway employees of the Prairie Provinces alone numbering over 60,000. The locomotives designed to meet the special service needed by Western Canada are among the marvels of engineering design, the latest Canadian Pacific Railway monsters being coal-burners weighing 336,000 lbs. with a tractive effort of 57,300 lbs., and oil-burners intended for the Rocky Mountain traffic, which weigh complete with tenders no less than 750,000 lbs. and develop a tractive effort of 78,000 lbs. The Canadian National Railways have in service a series of engines weighing with tender, in working order, over 667,000 lbs. with a tractive effort of 69,700

lbs., and have recently brought out an oil-electric locomotive weighing 620,000 lbs. and representing a new development in locomotive design.

The ordinary freight cars are themselves impressive, the latest types being of fifty ton capacity, 40 ft. 6 in. long, and holding 2,000 bushels of wheat. These are steel cars lined with wood, and are designed to eliminate all grain leakage in addition to speeding up the annual crop movement.

The movement of cars at the peak of the season is one of the world's greatest transportation events, the Canadian National Railways having moved more than 2,200 carloads in one day, while the Canadian Pacific Railway has records of nearly three and a half million bushels of wheat loaded in 2,430 cars in one day; of 1,597 cars drawn into Fort William in one day, and over two and a half million bushels unloaded; of 2,107 loaded cars moved East from Winnipeg in one day; and of handling through their Transcona yard 146,300 loaded and 112,477 empty cars in less than three months in 1928.

In our chapter on transportation problems we have dealt with the economic relation of wheat grower and railway company in detail. Here we may be permitted to suggest that in no other area is the interdependence of railway and farmer as obvious and as close as in Western Canada. Transportation had its rise in the need of farmer to exchange goods with farmer, and in the later creation of market-places to which goods might be sent from the farms of a district for exchange. Its development to meet the intricate commerce of the modern world has become so complex that in many cases its fundamental function is forgotten. That is not the case in Western Canada, where agricul-

ture is still dominant and the physical movement of the crop the great item in traffic. Here we still have the railway in its primary form as the teamster of the farmer.

It is common to hear it said that agriculture is the basic industry. That is a partial statement of the case. Agriculture is the only industry in the end, for civilization can only exist as long as men keep the art of winning food from the soil. Modern civilization is merely a highly developed specialization of agriculture, with great factories to replace the little workshop on the farm or at the crossroads, with bankers to enable us to postpone the bringing home of the goods for which in primitive society the farmer exchanges his crops, and with hospitals to replace by organized effort the goodwill of individuals to each other in sickness.

The great railway executive in his office, and the brakesman fighting his way to the switch through a blinding blizzard are just as much serving agriculture as is the farmer on the seat of his tractor, or pitching sheaves to the thresher.

To talk, therefore, as though prosperity might exist for railways while farmers suffer want is as absurd as to suggest that the horses which move the crop could be well fed and sleek while the farmer starved. There have been many disputes between the farmers of Western Canada and the railways, but there can be no doubt of the fundamental acceptance of their economic unity—of the sincere desire of the transportation companies to serve and develop the communities whose existence they have made possible, and of the willingness of the farmer that the organizations which live by serving him should be able to do so as efficiently in the future as they have in the past.

The railway has for the moment done its part when wheat reaches the channels of international commerce at the Head of the Lakes or at Vancouver—the two major outlets. There the grain is taken into the great elevators which we have described, and in due season, loaded on ships. Since, despite the economic identity of the two outlets, one is physically only a stage on the way to the sea and the other is a seaport, we shall deal first with the shipping upon the Lakes, and treat the ships at Vancouver as a case similar to those at Montreal and the Atlantic ports.

The grain-carriers of the Great Lakes are the most specialized large ships in the world. They are built to move grain and bulk freight from the twin ports of Fort William and Port Arthur across to the chain of ports, which dot the eastern shore of Lake Huron and Georgian Bay, and to do that alone. They must pass through the locks at Sault Ste. Marie, and are designed for that special function. A typical grain-carrier is a steamship, which is planned so as to provide the maximum possible capacity of hold, and ample hatchways, so as to permit of rapid loading and unloading. It is a highly utilitarian craft, seaworthy to stand the rough seas of the Lakes, and commences its annual service by bucking the ice as soon as there is hope of a safe passage, while it remains at work until long after the official close of navigation in many years, finally to become a floating storehouse for grain at some Lake port during the winter. Various attempts have been made to treat the grain-carriers as though they were economically similar to the railways, and always with complete failure. The coasting laws permit the Government to prevent American ships from engaging in trade between Canadian ports, and it seems on first

thought that this places the Lake trade completely in the control of the Canadian authorities. As we have contended, however, grain once it reaches the Head of the Lakes is definitely in international commerce, since even if its movement to other Canadian ports by foreign ships is prohibited, there is nothing, nor can well ever be, to bar its movement in foreign ships from there to Buffalo, or even across the Atlantic. For that reason, attempts to fix grain transportation rates will not automatically succeed, as refusal of carriers to accept the schedule might merely end in a greater proportion of the movement being diverted to Buffalo.

A full appreciation of the fact that grain at the Head of the Lakes is already in international channels of trade would prevent much wasted effort in the direction of controlling transportation costs and routes, and we have in another chapter enlarged on this point.

Modern shipping, especially on inland waters and most especially on the Great Lakes, where the hazards of open sea, subject to violent storms, are added to those of navigation in tortuous and narrow channels, must have its right of way, if not actually built, provided with lights, with buoys and other services, and it is admitted that in its implementing of its duty in this matter the Government of Canada has been fully successful. It is to be regretted that too little appreciation of this fact exists.

The grain-grower of Western Canada might be less often sceptical of the benefits he obtains from his citizenship in the Dominion were he to make an occasional voyage with his produce to market, and on his way down the Lakes to note that he is being at all times guarded and aided by every device which modern science has brought to the assistance of the navigator.

How successful the effort to provide a safe waterway has been is reflected in the insignificant figures of grain wrecked that are annually deducted in the accounting for the crop.

In addition to buoys and lights, the provision of waterways has involved the building of great canals. At Sault Ste. Marie both the United States and the Canadian Governments have provided canals, the United States channels being the most modern and the largest, and therefore attracting the greater part of commerce, in return for which American ships use the better facilities provided by Canada in various places. The United States canal has four parallel locks, ranging in size from 800 feet long, 100 feet wide and 18 feet deep at low water to 1,350 feet long, 80 feet wide and 24½ feet deep at low water.

Again at Port Colborne the waterway is diverted around the Falls at Niagara by a canal, which is at present too small to permit direct movement of the great lake carriers to the sea. The new Welland Canal however will correct this, and although we doubt whether it will ensure movement, at first at any rate, of a very large portion of the crop direct from the Head of the Lakes to Montreal, at least some will pass in that direction. It is an engineering enterprise of the first magnitude—the lock opened this year being actually the largest in the world. The locks on this canal are eight in number, with a usable length of 820 feet, width of 80 feet, and depth of 30 feet. The length of the canal is 25 miles, and its total lift 326½ feet, and these dimensions, its equipment with the most modern gate and towing machinery, and its great cost make it comparable to the great Panama Canal.

This will provide a channel capable of taking the

largest grain-carriers from the Head of the Lakes to the beginning of the rapids of the St. Lawrence just below Prescott, Ont., and provision for full use of that route is being made in the erection there of an elevator of 5,000,000 bushels capacity by the Dominion Government, and in extension of the elevator capacity at Kingston, Ont., by private interests.

Beyond Prescott the provision of a full-size channel will require joint action by the two Governments of the countries which border on the river. In our chapter on transportation we have dealt with this as a matter of general national development rather than of special interest to the producer of grain. What we may note here is that the Dominion has already completed the major portion of its share of the task of making a complete waterway from the Head of the Lakes to the Atlantic, of the most modern type and the greatest possible dimensions, and that the final link—if international agreement is reached on the section last-mentioned—will be made by the arrangement under which a new power company at Beauharnois, Quebec, undertakes as part payment for the use of public water-power to provide a ship-canal to the specification of the Government, to permit the passing of the rapids near the junction of the Ottawa with the St. Lawrence. There of course now exist complete water connections from the Head of the Lakes to Montreal, but they are in some places linked by small canals, not fully adapted to modern traffic, although at present handling the great bulk of the Western crop cheaply and efficiently.

In the matter of provision of inland shipping facilities then, and as shown in our description of the movement of the crop, in the matter of their use, Western Canada lacks little of being perfectly served. Nature

closes this great channel annually, a fact which is often alleged to be a great disadvantage to the Canadian grain-grower. We doubt the correctness of that view, and have given reasons elsewhere to believe that the annual freeze-up may be a tactical advantage in marketing wheat. Certainly, if the frequent assumption that lower transportation costs and freedom of movement of product will automatically improve the producer's return is correct, it is extraordinary that the wheat market at Winnipeg does not every year drop at the close of navigation. Assuredly, when that happens, the cost of transportation to foreign markets goes up some ten cents per bushel, yet the wheat that is moved in winter at the higher cost does not seem to return less to its growers.

To return now to the eastern shore of Lake Huron we find the railway again coming into play, to move the large quantity of wheat which is loaded into elevators there and transferred by a great portage to Montreal—or in smaller volume to Buffalo. A portion of this is diverted to domestic use in Eastern Canada, but partly replaced by the crop of that area. The net result, with a large amount of American grain from Buffalo, moves into the great elevators at Montreal, and provides an important part of the commerce of that port.

Vancouver to as great and sometimes a greater extent, and Quebec, St. John, N.B., Halifax and Prince Rupert to a lesser, share in this commerce, and the port facilities are in every case controlled by a port authority in the form of a board of commissioners, empowered to issue bonds and use the proceeds for port developments, the interest being paid from the charges made on traffic through the port.

The physical equipment intended to handle the crop of Western Canada is unique in its completeness and in its specific adaptation to its functions. It represents a colossal investment of money, from private and public sources, most of it wisely spent. It continues to expand in size as the volume of the crop grows, and its logical and well-planned form leaves no room for doubt that it will always be ready for new developments. Its operation employs an army, and provides no small part of the national commerce. Its existence is a definite bond between East and West, between farmer and other members of the community. Its magnitude and efficiency have long commanded the admiration of observers from other lands and are a justifiable source of pride to all Canadians.

The ships which actually move wheat across the seas to other countries scarcely come within the scope of this survey. Wheat is an ideal cargo for the tramp-steamers, and to the liners provides a clean, profitable and easily handled ballast. We have elsewhere suggested that ships on the high seas are not to be regulated as to charges by any rule of a single national authority. We have also pointed out that ships seldom plan their voyages for a one-way cargo, and that the amount of shipping available for wheat at any port is determined by the opportunities of bringing paying general cargo on the alternate voyage.

One point that is worthy of mention is that wheat in itself will not make a port rich. The prosperous communities at the Head of the Lakes handle more grain than any other group of ports in the world, but have remained modest in size. This is an important point to remember, since many controversies have been waged over the means to be adopted to foster the move-

ment of Canadian grain through Canadian channels. That is a worthy plan, but its resulting benefits to the ports thus to be favoured will be limited by their ability to use this traffic as a backlog for a general trade, and care must be given in any such plans to the interest of the producer, the position of whose grain in the world market may at any time be impaired by placing it at a point where the buyer can feel certain that it is deprived of competitive routes and markets. The interest of the producer should in this case be paramount.

We deal in another chapter more fully with the economics of transportation, and there discuss the Hudson Bay route from that standpoint. It is only necessary to say here that every provision is being made both on land and sea to make its operation successful, an important detail being the present planning of an elevator at Port Churchill of 2,000,000 bushels capacity.

From Belle Isle and Sable Island on the East, to Cape Chidley on the North and the headlands of Vancouver Island on the West, over land, lake and sea, the work goes on continually of improving the roads over which the wheat of Western Canada must move to the tables of the world. It is a magnificent system, of which every Canadian must be proud.

CHAPTER VIII

GRAIN EXCHANGE, BROKER AND SPECULATOR

IN ADDITION to the mechanism for the movement of wheat from its point of production to its markets which is provided by elevators, trains and ships, there is also the mechanism to carry out its sale. In the case of Western Canada somewhat more than half of the annual crop is sold through the Wheat Pool, the culmination of a generation of effort to establish co-operative sales methods on the part of the producer. The remainder is handled through an older system, which we here describe as Grain Exchange, Broker and Speculator.

Associations of dealers in certain commodities are of ancient origin, and are merely attempts to organize on a large scale the marketing which in a more primitive community would be conducted, and is indeed still conducted, at the periodical markets of country towns. When the transactions in any commodity at any centre become so large, and are shared in by so many people, that it becomes necessary to provide a central hall in which they can be conducted, and to lay down rules for their conduct which will permit them to be carried on in an efficient manner, and only by persons of known standing in the trade, an exchange is formed.

This is a voluntary association of dealers, who agree to do business within the scope of the exchange, only with other members, and always according to certain rules which define what bargains are to be considered

binding, and how the settlement of outstanding accounts between members shall be made, and where. There are the usual presiding and recording officers, and a place of meeting.

The Winnipeg Grain Exchange is such a body. There is no need to go in detail into its history. That can be dealt with as far as is necessary by occasional references to its actions as they have affected the interests of other sections of the grain trade from time to time.

Its present status is that of a voluntary association of traders, membership in which can be acquired by the purchase of a seat, for $50,000 in the case of a new seat, or at any agreed price from a member in good standing who wishes to retire. Its annual dues are only $80.

In another chapter we have traced the disposition of the annual crop of Western Canada, and have stressed the complexity of the channels through which it passes, and its widespread dispersal to its final markets. There are some 250,000 farms in Western Canada from which wheat comes to market, and many thousands of millers throughout the world who buy it. The impossibility of arranging contacts between them without an elaborate commercial system is evident, and it was natural that the nucleus of such a system, its first point of organization, should be as near as possible to the last point through which the whole stream of wheat should pass on its way to market.

Such a point, in the case of Western Canada in the days when only one road to market had been opened, was necessarily somewhere between the point where Lake Winnipeg forces all the railways from West to East to pass through a narrow isthmus, and the Head

of the Lakes, where the dispersal of the stream of wheat into many channels commences. In that district the only point at which other economic forces have tended to create a large city is Winnipeg.

At Winnipeg therefore we have an exchange, where dealers may collect shipments from the producers, and dispose of them to purchasers. For that function a small charge is made, and even the keenest critics of the Grain Exchange have never suggested that it is excessive. The regular tariff is, for receiving and selling per bushel of wheat, one cent; for sales not completed, but closed out, one-half cent per bushel of wheat; with variations to cover special types of trading.

In addition, however, the custom in Western Canada has been, for reasons elsewhere discussed, for elevators at country shipping points to be provided by private capital, and it was natural that those most likely to make this investment should be dealers in wheat. As a result, we have great systems of elevators controlled by corporations or persons who are members of the Exchange. This has meant that the membership of the Exchange has to a great extent ceased to consist merely of brokers, or commission agents handling wheat on behalf of shippers, and selling it at the market price of the moment. Members are often actual wheat merchants, buying wheat which they later sell and accepting the resulting difference either in loss or profit.

We make this point clear, because it is probable that not a little of the antagonism between producer and Exchange has its origin here.

Inevitably, wherever a commodity is bought and sold speculation takes place. Trade and barter of all kinds

are essentially speculative in that the date of almost any transaction is influenced by opinion as to the movement of prices in the future. A farmer who has a thousand bushels of wheat is speculating if he tries to sell it because he is of the opinion that the market may go down, or if he holds it because he hopes for a better price. The miller in Britain buys when he feels that the time is the right one, and this is speculation.

A broker normally does not speculate, since he presumably has orders from the seller, whose agent he is, as to the date or the price at which grain is to be sold; but a merchant who purchases wheat for resale is in that act inevitably a speculator. All buyers are in any case speculators, and the Exchange is for these reasons inevitably a place of speculation.

Further, it is a familiar fact in all exchanges that speculation may fill a useful function to both buyer and seller. In the case of wheat, for example, the market on which it will be consumed is a long distance from the point of origin, and transportation is slow. A firm of millers in Britain may purchase a hundred thousand bushels of wheat actually located at that time in an elevator at Fort William, or a shipper may decide to load a ship at Montreal with wheat to be offered for sale on its arrival at Liverpool. In either case, as long as the owner of the wheat has it on hand, he assumes the risk—a very considerable one—of a drop in the price of the commodity. It is true that he also may benefit from a rise in price, but if he is interested in wheat only as the raw material for his mill, or in order to obtain from its handling a small fixed charge per bushel, he may prefer not to let the chance of obtaining a profit from a rising market be his protection against a heavy loss.

For that reason we have the practice known as "hedging". A miller who buys a shipment of a hundred thousand bushels will perhaps hedge his purchase, at the same moment, by selling the same amount for future delivery, or the broker will buy for future delivery, an amount equal to his shipment. In either case, by this operation the chance of a profit from a rise in price is foregone, in order to obtain protection from loss, as it is evident that under this system when the time comes for the hedging operation to be completed by the delivery of wheat at the end of the "future" transactions, the purchaser who hedged will have exactly as much money as is needed to purchase the one hundred thousand bushels which he promised to deliver at that date—without considering certain minor adjustments for "carrying charges" which do not affect the principle of the case.

That is, the purchaser who on October 30th bought one hundred thousand bushels of wheat at $1.25 paid out $125,000, and at the same time took in $125,000 by his future sale. If wheat went, by the end of the period for which he had hedged, to $1.50, he passes on the additional $25,000 to his customers in the price of flour, and this added to the $125,000 received from the future sale, gives him $150,000 to buy one hundred thousand bushels with which to settle his future sale.

Or, the seller, who shipped one hundred thousand unsold bushels when the market was $1.25, sold on the same day another one hundred thousand bushels at that price for future delivery. Should the price drop to $1.00 by the time his shipment reaches its market, he still can sell it, and be even, because he can fill his future commitment with $1.00 wheat. Should the market rise, he will miss a chance to reap the profit,

because a rise of 25 cents per bushel will only permit him to sell his shipment for $150,000, and that is what he must have to leave him in the same business position as he was at the start—owning one hundred thousand bushels of wheat and enough money to buy one hundred thousand bushels more.

This means simply that hedging is intended to take the element of speculation out of dealing in wheat.

On the other hand, it is evident that hedging can only continue while speculation in wheat is going on. The amount of actual wheat bought and sold each day must balance, and obviously if only actual traders in actual wheat engaged in the market, there would not be any margin of buying and selling power to take care of small differences in the total amount of hedging done on each side. That is, if all the actual sales made in any day are to be hedged, but a million bushels are bought without hedging, a million bushels of sales will not find an opportunity for hedging. For that reason those markets only are suitable for hedging in which outsiders are speculating, who are not in the least desirous of either buying or selling actual wheat, but are gambling in the hope of making money.

Now, is hedging important? Or could the wheat crop be marketed without the existence of machinery for it?

It produces gambling. Who loses in that gambling, and who wins? What is the effect of hedging, and its accompanying gambling on the price received by the producer, or on that paid by the purchaser? Hedging is only rendered possible by permitting trading in wheat for future delivery. What then would be the result of abolishing such trading?

Hedging is important, since without the ability thus

to protect themselves against great price fluctuations those who at any stage own large quantities of wheat would be taking too great a risk. It has been used not only by private firms dealing in wheat, but universally also by co-operative elevator systems whenever they were of the type—like the former Saskatchewan Co-operative Elevator Co., Limited,—which purchased wheat from the farmer, paying him almost all of the final price for which they hoped to sell his crop.

It is also important, since firms which practise it are in a position to handle wheat on a very much smaller margin than would be the case if they took the risks thus avoided. It is important because a great deal of money must each year be advanced by banks and other business institutions against wheat in store, and they regard hedging as being a prerequisite to lending anything like the full market value of the wheat.

The wheat crop could be marketed without it, by Pool methods, as soon as the whole crop is thus handled. We have given reasons, in another chapter, for our belief that this is not a situation likely to come about at once, and further in this chapter indicate why we believe that hedging is still necessary, even with the Pool in existence.

In the gambling that accompanies hedging there is every reason to believe that the losers are unskilled and unsuccessful speculators, usually outsiders not connected with the actual commerce in wheat, and that the winners are those of the outsiders who have unusual skill or luck, to a small extent, but usually skilled wheat traders who obtain probably the greater part of all the money risked on the market by outsiders.

The effect of hedging on the price paid by the pur-

chaser to the producer is one of stabilization, as it tends to eliminate the greater temporary fluctuations. The speculation accompanying it on the whole does not affect the price of wheat to consumer or to producer, since it merely ends in the money risked by amateurs passing in most cases into the hands of professionals.

Should speculation be abolished by law, the effect would be, as long as hedging is regarded as necessary by actual traders in wheat, for it to be conducted outside the province or the country in which the law was effective. If, in a word, future trading were abolished at Winnipeg, it would be established at Montreal; or if barred in Canada, carried on at New York or London.

Now, if we are right, and the Winnipeg Grain Exchange is a well-organized body, filling a useful economic function, at least at the present moment, in connection with the marketing of Western wheat, what lies at the root of the great and pervading hostility to it that has sometimes been so clearly shown in the words and actions of organized farmers in the West?

In the first place, there is a certain vague discontent with a system by which the average producer of wheat makes but a modest living, while a whole group of wealthy men have gained their fortunes in the marketing of his product. That is an emotional reaction, and the only argument against it is that no one has yet created a system of society in which certain avocations will not be more profitable than others. The only real grievance in this regard would arise if the charges made by the members of the Grain Exchange were unreasonable in proportion to the services rendered.

On this point some figures given in a report of the Dominion Bureau of Statistics are illuminating. They deal with the estimated cost of moving 1,000 bushels

of wheat from a typical central point in Western Canada to Liverpool, and we summarize them as follows:

Country Elevator Charges	$ 17.50	
Broker's Commission	10.00	
Dealer's Profit	5.00	
Rail freight to Fort William	150.00	
Terminal Elevator Charges	12.50	
Port Colborne Elevator Charges	5.50	
Grain Commission's Fees	4.00	
Bank Charges for drafts, etc.	10.00	
Inland Water Freight	82.92	
Lake Ports Loading, etc.	.87	
Clearance Associations	.50	
Montreal handling Costs, and Stevedoring and Space Brokerage	20.57	
Ocean Freight	62.10	
All Insurance	15.85	
		$397.31

In any event a total cost per bushel between a country elevator and Liverpool of forty cents would assuredly represent highly efficient handling. The proportion taken by the Winnipeg Grain Exchange and its members is very small.

Indeed, if any real unnecessary and removable cost of handling wheat can be found, it lies in the operations of men who buy wheat and resell it as a trade, and probably almost entirely in the handling of the grain after it has reached overseas markets, rather than in Canada. In any case, whatever of this might exist in Canada is not chargeable to the members of the Grain Exchange in their capacity as brokers, but only when they act as merchants, buying and selling wheat as an ordinary part of commerce, and to use the

term "Grain Exchange" as characterizing those who profit by this is to perpetuate a serious and most unfortunate misunderstanding.

Another reason for hostility lies in the natural belief of those who have not made a special study of the case, that speculation and future trading represent immoral and uneconomic methods of exploiting the producer or the consumer. It may be immoral—but only if society as now organized is so labelled; it is not uneconomic, and it is to be hoped that fuller information made more generally available to the wheat grower will convince him of that fact, since useless hostility is merely useless provocation to unrest and dissatisfaction.

There are more tangible reasons for hostility. In the first place, we have pointed out that the Exchange consists not only of brokers engaged in the selling, on commission, of the producer's wheat, but also of corporations and individuals who actually deal in wheat—buying it in the first instance from the farmer, and then selling it, and assuming the chance of profit and the risk of loss. In his capacity as a broker a member of the Exchange may be wholly willing to see wheat sold at a high price, and the farmer receive all except a nominal amount per bushel. When he is a dealer however he is, if he is not of special and most unusual type, desirous of buying wheat cheaply and selling it as dearly as possible. He is not an ally of the producer. That is not however, robbery, but ordinary business. As a broker he offers to any producer with wheat to sell facilities by which he can sell it for a small charge. If the producer cannot afford to wait a chance to sell at a satisfactory price, but in order to make money at once available for pressing debts, must take his wheat to the elevator and turn it into cash, the

ordinary rules of business permit the buyer to use his better economic position in order to make a profit.

Secondly, there is the feeling that the members of the Grain Exchange have been unsuccessful in obtaining for the farmer all that might be had for his wheat —have been not as fully competent as agents as they might have been. There is reason to believe that of all reasons for hostility to the Exchange this alone has some validity. Whether it has or not is now in process of being determined. The Pool has definitely attempted to bargain for a better price for wheat than it would have brought under the older system of sale: there can be no question on that point. Should it succeed, the result will inevitably be to make men believe that the charge of indifference to the farmer's interests on the part of his agents—the membership of the Exchange—has been proved.

Against that, however, must be argued the possibility that the chance to bargain may be better today than at any past time—that the market may be more of a seller's and less of a buyer's than in the past. There is also the fact that the Exchange is not a selling bureau, but a mere association of selling bureaux, and that it has never even attempted to use the collective bargaining power of its membership. The Pool today disposes of some twenty per cent. of the wheat which enters into international commerce. That is a block large enough to be impressive in the eyes of the buyer. He must reckon with the Pool. No member of the Grain Exchange has ever been in that position.

So much for the present status of the Exchange. It is without doubt a legitimate association of business men of a high average of competency and honesty, which—even if we suspect it of not having accom-

plished all that it might have to assist the producer—has been an asset to Western Canada. No doubt can exist of the truth of that statement when it is remembered how many of the men who today direct the operations of the Pool with satisfaction to the members were trained in the service of the great grain companies. What of the future?

It is not to be denied that the creation of the Pool has been a blow to the Grain Exchange. Up to that time the Exchange handled the whole of the Western crop. Today the Pool may at any time take direct to market more than half of the output.

The Pool is a member of the Exchange—a fact for which its administration has been criticized, unfairly in our opinion. If we are right in believing that the functions of the Exchange are of economic value, then the Pool is showing ordinary good sense in taking advantage of them. As we have pointed out in another place, while the Pool may at least in part be the creation of men who believe in the substitution of co-operative methods for the present system of economic society, it exists at this moment in contact with the present system and must be free to use that system. It would be as reasonable to suggest that the Pool must not borrow from existing financial institutions as that it must not be a member of the Exchange.

It is not bound to use the hedging facilities, since it does not buy wheat, and never owns it. It merely sells for the account of its members, who at all times own the wheat. The accounting is made to the membership as a whole, by dividing the price received for all the wheat. In that way the Pool can remain indifferent to rise and fall of markets. It sells wheat as best it can, and then divides the proceeds.

It is, however, bound to sell at least in part to buyers who desire to hedge, and thus wish to deal on the Exchange. Indeed, it has been suggested that the very fact that the Pool is not bound to sell all its wheat through the Exchange has limited the usefulness of that institution, since there is always a danger that the Pool might make what is called a "corner" by withdrawing such a quantity of wheat from the market that it might be able then to demand exorbitant prices from those who have sold wheat for future delivery and now wish to settle their obligations. It has even been alleged that the recent creation of a grain exchange in London to deal in futures of Canadian wheat is the result of this fear on the part of importers in other countries, who see the Pool able to by-pass the Winnipeg Exchange with much of its wheat, and who wish in this way to have this wheat later subjected to ordinary exchange rules.

Assuredly the Pool now occupies a dominating position in the mere fact that it is by far the most powerful member of the Exchange.

The Exchange, on the other hand, has not attempted to keep the Pool out. Nor, since the Pool is not one of the older types of co-operatives, or possibly for other reasons, it has not tried to oppose its methods of distributing money to its membership, as once it tried to bar the Grain Growers' Grain Co., Limited, on the ground that its plan of patronage distribution of earnings was in violation of the rule that members may not rebate commissions to clients. Individual members may have shown some inclination to criticize the Pool, to magnify any minor error that it may make, and to seize on rumours of division in its ranks; the Exchange as a body has not done any of these things.

Should the present division of the trade in wheat be continued, the Exchange can still exist, and indeed must function. On the other hand, should the Pool gain enough new members to make it unprofitable for private dealers to maintain costly organizations to serve but a few farmers, the Exchange would necessarily cease to operate.

In the latter event, what would occur? As far as we can see, exactly similar facilities for trading, both cash and future, would need to be provided at some other point, some place where wheat is largely dealt in, and which would not be in Pool control. It might be at London. The argument against this is that the Pool has so far attempted to sell direct to the user of wheat in Britain or other countries, and that if this policy were applied to the whole crop of Western Canada it would be impossible to create an exchange at any point to deal in futures on Western Canada wheat. This is true, but it seems improbable that it will ever be possible for even a Pool controlling the entire crop to dispose of it wholly to people who will only use it for their own milling operations. What would be likely to occur would be that trading in Western Canada wheat would spring up between the buyers. A miller in England, for example, might seize the opportunity of what seemed to him a low price for grain to buy more heavily than his own operations would justify, and try to re-sell at a profit to others later. Once this sort of trading commenced it might well end in the creation of a substitute in England for the vanished Exchange at Winnipeg.

There is also a possibility that the Pool might decide after experience that the plan of direct sale was not of benefit to its members—that the savings effected

did not go to the producer but to the buyer. In that case they would probably sell all their wheat through the Exchange, at least as long as that body still existed.

That brings us to the consideration of another possible outcome of the present situation. As we have said, the existence of a single organization controlling more than half the crop has already tended to limit usefulness of the Exchange. It has also tended to make the individual private concerns who deal in wheat consider their own future. By the simplest rules of logic they have been forced to take Pool policy into consideration in planning their sales. They cannot afford to dump their holdings of wheat at what they will bring, if the Pool has decided to hold for a higher price, for that might make the Pool distribution of returns per bushel so much higher than the prices they had paid as to make it certain that almost every non-member of the Pool would flock to join it. They cannot, on the other hand, hold for a price unless they know that the Pool will not dump its holdings on the market much more cheaply. They must be guided, willingly or not, by Pool policy.

The logical result of this situation would be such a series of mergers of private grain companies as to make the division of crop-handling automatically end in the greater part being sold through the Pool, and a lesser but still important part through a single great private company.

The effect of that would inevitably be that the two organizations would co-operate in sales policy, simply because it would be common sense to do so. The co-operation would be automatic, indeed, even in the absence of a formal agreement, since the private company must follow Pool sales policy to be safe.

In that case the Winnipeg Grain Exchange would simply vanish, probably to be replaced, as we have said, by one at some other point. Should that not occur, the single private corporation which we foreshadow would be engaged in a highly speculative enterprise, since it would each crop year be forced to decide the price to be paid the producer when the crop was actually brought to the country elevators, without being able to protect itself by hedging sales against a possible heavy fall in price before it could be re-sold.

The Pool, of course, does not have to take such a risk, since it never buys wheat, but merely handles it on commission.

Moreover, we must consider the effect of the possible change in purchasing methods in other countries which we have mentioned in another chapter. We have shown that movements are under way in every great grain-exporting country to adopt Pool sale of wheat, and that a very likely reply to such a development would be collective purchasing in importing countries. Such a situation would be one in which grain exchanges could not function. Whether it would be a situation better for the producer than the present one is a question too speculative for us to answer. It would be a development of world importance, and might affect international relations and the whole economic structure of society.

It is clear at any rate that the coming of the Pool into the situation has affected the interests of those engaged in the marketing of grain as a commercial enterprise, not only to the extent of taking from them a portion of their business, but by threatening their very economic existence. It is also evident that the

outcome of the events now under way or shaping in the future are of vital importance to all who directly or indirectly depend on the production or marketing of grain.

The time, therefore, has passed when the situation could be considered as a mere struggle between the producers and the private dealers as to marketing methods. The time has arrived for consideration of the end to which the present course of events will lead.

To obtain such consideration, to make it frank and full, and to ensure that it will result in measures to safeguard the interests of our greatest national industry, there must be an end to internal strife. There is no room for hostility on the part of producers toward the Grain Exchange, nor for attempts of the private dealers in grain to discredit the Pool. What is needed is the burying of ancient grievances, acceptance of facts as they are, and a sincere attempt to make certain that in the inevitable process of change ahead errors are not made which will damage or endanger the prosperity of an industry which is of basic importance in the economic life of the nation.

In the era of Grain Exchange, Broker and Speculator we had a coherent and smoothly-functioning machine for the sale of the wheat crop. Out of the creation of the Pool we may evolve a better one. This is, however, a period of transition, and it is not to the interest of either the producers or any other economic group in the country that the transition be left to work itself out through the dangerous process of trial and error.

Perhaps we are too far in advance of the present state of public opinion in such a suggestion; perhaps

it is as yet useless to suggest that Pool leaders and the heads of the great private grain companies should attempt to find a plan of action which would solve logically the difficulties of the transition period; perhaps even the suggestion can never be adopted, and the situation must be left to end in the complete destruction of the older system of private sale of wheat, or in the victory of the private dealers over the Pool.

In any event we wish to record the opinion that the whole question of marketing the wheat crop of Western Canada is fast approaching a point of danger, and that it should not be impossible for all of those interested to meet on the common ground of the good of the industry in an attempt to avoid that danger.

CHAPTER IX

BUILDING THE CO-OPERATIVE SYSTEM

A WORK of this kind cannot deal fully with any of the subjects on which it touches, and for this reason we cannot attempt to go into a detailed history and discussion of the co-operative system of marketing farm products. It is, however, necessary to point out that the idea that producers should control the sale of their product has two entirely different manifestations, and that the basic difference between them has been a factor of weight in determining the course of the various co-operative marketing enterprises which have at various times endeavoured to undertake the selling of the wheat in Western Canada.

On one hand we have what might reasonably be called "co-operation without a philosophy". By that we mean attempts by producers to organize the sale of their product, either because they are discontented with the skill shown by existing agencies in bartering on their behalf, or because they feel that the charges made by those agencies for their services are too high. On the other hand we have "co-operation with a philosophy", by which we intend to describe what is essentially an attempt to create a whole economic system, in which co-operation of producer and consumer is to replace the present competitive method of conducting industry and commerce. It is interesting to see these two types of effort at work in the building of a co-operative method of selling wheat.

The early settlers in the Prairie country were, as are most pioneers, highly individualistic in thought, holding that a man's lot in life is to struggle, and that the most glory belongs to him who struggles with the least aid. This note still sounds throughout the life of Western Canada, and its influence is responsible for much of the impression of dauntless courage, of willingness to accept any odds of battle, and of cheerful and uncomplaining facing of hardship that comes to an observer who watches the West about its business of making a country.

On the other hand, pioneer life, in which social organization does not automatically provide protection, education, or social services of any kind, is the best of all schools for co-operation in practice, which has made the West notable for its fervent community spirit,—a spirit which concerns itself not only with schools and churches and roads, but with every public movement which appears likely to assist in improving material or cultural standards of life.

Elsewhere we describe early wheat marketing conditions, and also the importance of wheat in the economic life of the country. From those descriptions it is possible to picture a country of pioneer farmers, on the whole drawn from settled older communities and accustomed to the amenities of life, facing what must have seemed incredible hardships, but yearly finding their faith in the new country built on solider foundations of growing prosperity. These men see other men in distant cities, who, sitting in comfortable offices and living in luxurious homes, are able to live by marketing the wheat which the pioneer, by infinite toil, has won from the wilderness. There is no reason to take time here to discuss whether their picture is

a fair one. What matters to our story is that it was the picture they saw. What more logical reaction could have resulted than that the pioneer should say to himself that his first task—when he could spare the time—would be to so arrange affairs that the profits on which these men lived should remain to him?

There were plenty of more tangible grievances. The first railway company of the Prairie country was reasonably able to carry wheat to market, but wheat is a bulky commodity, to store which the pioneer settler was ill-equipped. The railway company was wholly unable to finance the requisite elevators which Western Canada must have, if only because its normal road to the sea—the Great Lakes—is impassable for some months each year, exactly at the time when the farmer had—at least in those early days—the most wheat to ship. The only solution was to permit private dealers in grain to provide what is essentially a public utility. Private capital however, especially in a new country, hesitates to invest money far in advance of a reasonable hope of return, and elevators therefore were not erected except where settlement and production had advanced to some degree. In addition, the elaborate machinery of inspection and of control of relations between producer and buyer which now exists was only in its most primitive stages, with the result that, in the absence of effective competition, the seller believed, and frequently with entire justice, that his necessity was being exploited.

Naturally, the first co-operative efforts in Western Canada were in the form of local companies to provide elevators for their shareholders. There was little of co-operationist theory about it. Sometimes the company was a joint-stock one, sometimes such formalities

were waived, and it was a mere voluntary association. In 1899 there were 447 country elevators, of which 26 were owned by the farmers.

The next step was for the farmers' companies to proceed to the sale of grain. At first it did not work out successfully, since the private companies could, and frequently did, deliberately attempt to throttle this new competition by paying more for grain at points where farmers' elevators were operated than at others. Appeals to the national Government produced valuable legislation, much of which is still a basic part of present regulations. The various grain-growers' organizations elsewhere described fought for equity. In the end, however, it was apparent that nothing would avail except the creation of a farmer-owned line of elevators, on a scale large enough to supply a strong central grain-marketing bureau.

From this, and under the auspices of the Territorial Grain Growers' Association, sprang the Grain Growers' Grain Co., Limited, organized under a Manitoba charter in the early part of 1906.

This organization was a simple joint-stock company in form, but showed at least a tendency to co-operationist ideals in that it proposed to divide its profits pro rata of volume of business. The form of its charter, however, did not permit of this, and in addition the Winnipeg Grain Exchange, on which it had purchased a seat, took the position that this feature of its operations would be in violation of the rules of the Exchange. The controversy aroused by this is historic. It led to a modification by the company of its co-operative method of distribution of profits, which, however, did not for a long time placate the Exchange; to the company's reinstatement on the Ex-

change after a threat of the Government of Manitoba to cancel the Exchange's charter; to an attempt to have the Exchange dissolved by legal action as being in restraint of trade; to a Royal Commission on the whole grain trade; and, in the end, as a protest against certain restrictive legislation, to the voluntary dissolution of the Grain Exchange, and its revival in its present form of a voluntary association.

It also led to a wave of resentment among the farmers against the Exchange, and to their rallying to the support of the new company so completely as to enable it to weather successfully the tempests of that time, and to move forward in a course of good administration which has built it up to an important position in the grain trade, under its present name of the United Grain Growers, Limited.

It is worthy of note, as illustrating the diverging trends of the two schools of co-operation to which we have referred, that in recent times this original attempt to create a farmer-owned marketing bureau has come to be regarded as almost reactionary, chiefly owing to its refusal to return to its original plan of pro rata distribution of profits, and that recently it has taken the final step of abandoning its membership in the Co-operative Union.

This company provided a marketing bureau, but there still remained the question of country elevators. Despite regulations intended to place the elevator owner in the position of a common carrier, it has always been true that privately-owned elevators have failed to give satisfaction to producers who desire their grain to be consigned to co-operative sales companies. The number of farmers' country elevators had by 1910 increased to 60, but in view of the tremendous increase

in grain production this was wholly inadequate if farmer-ownership of elevators was to be a factor in that case. In 1910 the Government of Saskatchewan appointed a Royal Commission to study this question, and the next year implemented its recommendations by incorporating the Saskatchewan Co-operative Elevator Co., Limited.

In Manitoba, following a wave of demand in 1906 and 1907 for the creation of a state-owned system of country elevators, the Government actually engaged in 1909 in this activity, and acquired 174 elevators. The experiment failed, for reasons only too common in the history of state-ownership, and the line was leased to the Grain Growers' Grain Co., Limited, in 1912.

In Alberta a co-operative company was formed in 1913.

During the War an attempt was made to merge all these farmer-owned companies, which ended in 1917 in the amalgamation of the Alberta Farmers' Co-operative Elevator Co., Limited, and the Grain Growers' Grain Co., Limited, as the United Grain Growers, Limited. The Saskatchewan Co-operative Elevator Co., Limited joined in the conference looking to amalgamation, but owing to its desire to maintain its own sales bureau, and, more important, to its desire to confine its activities to the sale of grain alone—the other companies engaging in trading in livestock and farm supplies—remained independent.

During these years of struggle to create a co-operative organization capable of completely serving the needs of the grain grower, interesting changes had been going on in the social and economic character of Western Canada. To picture them by figures alone would be to draw a very distorted image. It may be

noted that the population of the Prairie Provinces had, from 1871 to 1917, grown from perhaps twenty-five thousand to nearly two million; that acreage devoted to wheat had increased from practically nothing to over twenty million; that railway mileage had lengthened from 66 in 1876 to over 15,000 in 1923; that country elevators had grown in number to 5,000.

Western Canada, in short, had spread from the little Red River settlement until its civilization had covered the great triangle from Lake Winnipeg to the Peace River, the Rocky Mountains and the international boundary. From a rough pioneer community of simple structure, it had become a highly organized modern community, in which education and the standards of living were matters of deep interest.

It had grown by the natural increase of population, and by immigration. The children born on the Prairies and to whom the West was home in the truest sense, were old enough to fight for their country in the Great War, and to return home ready to face the problems of reconstruction. The immigration, drawn from a dozen countries and a score of races, had come very largely in the years between 1905 and 1912, when the West seemed daily to change its appearance, so fast did progress march. The post-war wave of immigrants were men uprooted by a cataclysm, and ready to forget the country they left for the new one in which they hoped to find peace after a nightmare.

This was a population ripe for experiment, and untrammelled by conventional theories. It was infected with modernism, and numbered among it men versed in every theory of social or economic structure that has ever been preached. This subject is dealt with elsewhere, but at the risk of repetition we must

stress this factor in the situation at the end of the War.

The situation faced by this people was not a simple one. The boom days before the War had left many problems, and the years of inflated prices and of hectic excitement had added to them. The collapse in the price of wheat, the hasty search for some panacea to cure its effects, the movements for free trade, for currency and credit reform, for changes in the Grain Act—all these are of very recent times.

Fortunately, through it all the average farmer kept his mind on one thing—how to improve the marketing of his product. The experiments undertaken before or during the War could not be properly valued, by reason of the abnormal medium in which they were made. He still had faith in his ability to market his own product in such a way as to make his net return larger, but he had little on which to base that faith in the way of tangible results of earlier experiments.

In the latter years of the War—1917 and 1918—the British Government had purchased the entire Canadian exportable surplus through a single bureau, and at a price set by the Canadian Government. This system happened to coincide in existence with a period of high prices, and although many producers argued that had open trading been permitted the price would have been still higher, the great majority were satisfied, and inclined to attribute their increased returns from their crop very largely to this system of selling it. As a result, when the termination of the War caused the British Government to withdraw from its collective purchasing of wheat, a demand sprang up for a continuance of the system under the auspices of the Canadian Government. The Wheat Board was

the result—a commission empowered by the Government to purchase and dispose of the whole Canadian crop. The period of high prices continued during 1919 and until some time after the Board's cessation of operations in 1920, with the result that those who felt that the system of sale largely affected the price were able to point to further proof of their contention.

It is to be doubted if there is much to support this theory, since wheat in countries where no wheat board was functioning, as well as almost all agricultural products in all markets, shared in this period of high prices. Deflation might have been less sudden and not gone as far in lowering prices had the Board continued to function, but that is all, and any good effect produced by continuing its existence must necessarily have been temporary.

This left the farmer dependent, as far as any benefit to be derived from co-operative sale of wheat might go, on the two existing agencies—the United Grain Growers, Limited, and the Saskatchewan Co-operative Elevator Co., Limited. Of these neither was powerful enough, nor even the two combined, to accomplish any serious change in marketing methods, as up to the time with which we are dealing—the immediate post-war years 1919-20-21—their combined turnover of all grain had not exceeded some fifty million bushels annually.

In addition neither institution could be described as meeting the standards of the school of "co-operation with a philosophy". It is true that the United Grain Growers, Limited, was owned by wheat producers in its entirety, but it was operated exactly as any other grain company might be. It had never succeeded in restoring full patronage distribution of profits to its programme.

Saskatchewan Co-operative Elevator Co., Limited, was perhaps even less in acordance with true co-operationist ideals. In the first place, it had been financed to the extent of 85 per cent. of its capital by the Government of the Province. In addition, while it maintained a sales office through which were sold the crops of its patrons, no pooling was practised; i.e., each patron was paid for his grain what appeared to be the proper open market price at the time he delivered it, and a later adjustment made so that he obtained the full value of his wheat when finally sold. This was not co-operationist sale, but a special, and as far as possible non-profit, elevator and sales service. Both were entirely voluntary, no contracts binding the members or shareholders.

Out of the social turmoil following the War there emerged a new class of leader in Western agricultural communities. The earlier leaders of farmer movements had been men of more than average education, and entirely sincere in advocating any measure that might assist in improving the lot of the Western farmer. The new men were as well equipped in these regards, but generally more familiar with the many theories concerning the economic reorganization of society which have become formulated in recent times. On questions of the tariff, of currency or credit, they were frequently informed to the point of expert knowledge. A group of them, the Progressive members of the Parliament which assembled in 1921, won from the rather reactionary members of other parties, and from the press and public opinion of other sections of the country, a reluctant but none the less sincere admiration for their skill in debate and profound knowledge of economic history and philosophy.

In the special matter of the marketing of wheat, men of this type soon led public opinion among the producers. Most of them were entirely familiar with the whole philosophy of co-operation, and many were deeply convinced of its soundness as a systematic plan for the improvement of society. It is not known how many of the farmers who followed them in the years between 1919 and 1926 were also convinced co-operationists, or how many merely accepted the new doctrine as one remaining chance to better the marketing of wheat, but it is certain that the new group soon became very powerful in the moulding of farmer opinion. Many of the older leaders found it easy to keep pace with them, although a few, who had been ever pressing in the cause of farmer organization, seemed to find the new school too extreme and took refuge in a milder and less definite liberalism.

Under such leadership the demand for a much larger and more powerful sales organization of true co-operative type soon took form. As was to be expected, much effort was given at first to trying to revive the Wheat Board. The falling market for wheat which continued to the end of 1923, and the concurrent distress in many prairie communities spurred on the effort. There seemed to be no time, when women and children were in want, to play with plans of educational campaigns and organization movements. The political moment was suitable, for the Progressive movement had placed the representatives of Western grain growers in a splendid strategic position, which they used with skill that commanded equal annoyance and admiration on the part of other parliamentary groups. There can be no doubt that a Wheat Board would have been created in the early days of the Parliament of 1921-25 had the

decision rested with the Government at Ottawa, but, possibly much to the relief of the administration, the Crown law officers advised that concurrent legislation by the Provinces affected would be necessary for the validity of such an act. Acts for this purpose were passed at special sessions of the legislatures of two of the Provinces, Alberta and Saskatchewan, but in Manitoba the Government found it unwise to proceed with legislation in 1922, and when a bill was finally introduced in 1923, it was defeated.

This ended the movement for a Wheat Board, probably to the great advantage of all concerned, for such an experiment, in times of peace, might have been disastrous to the greatest of the nation's industries. The success attained by such a body under war conditions was due, not only to the high prices then ruling, but to the fact that purchasing as well as sale were wholly—and after the War for some time partly—controlled by single bodies. This meant that international competition was for a time suspended, and that prices could be fixed by agreement. That is far from being the case in the present market.

The campaign to revive the Board had one good effect. It accomplished the very process of education which it had tried to evade, and the Prairies were ready in 1923 to consider the formation of pools by voluntary effort. In addition, the strength of the demand for some such organization had been deeply impressed on all the legislative bodies concerned. It now remained to create one.

The decision to proceed at once in all the Provinces was made in the latter part of 1923, and by October the Alberta Pool was functioning. Saskatchewan and Manitoba failed to complete their organizations that

year, but had fully operating machinery at work in time to handle the next crop.

Such an achievement as the complete organization of three Provincial Pools in such a short time, and the setting up of the Central Selling Agency must always be considered phenomenal.

It would be unwise to attempt to divide the credit for this achievement between the many leaders of Western agriculture to whom it belongs, but it is proper to say that to Mr. Aaron Sapiro, the well-known organizer of co-operatives in the United States, is due a special tribute of gratitude from Pool members. His inspiring campaign at this time did much to make the movement an immediate and impressive success.

All this could only have been accomplished in Western Canada for many reasons. There alone has the inspection and handling of grain been carried to what must at least approach mechanical perfection. In Canada alone does there exist a country and terminal elevator system adequate to the needs of the grain growing community. There alone were already both ample co-operatively controlled elevators for at least initial emergencies, and sales agencies such as those of the Saskatchewan Co-operative Elevator Company, Limited, and the United Grain Growers, Limited, both temporarily put at the service of the new movement.

More than all this, however, in Western Canada alone is there a community alert enough, energetic enough and self-reliant enough to accomplish such a task. Had early co-operative movements all failed, and the many farmers' organizations of Western Canada all vanished, they would leave behind them a joint monument in the Pool, and should that in turn go down

to ruin, the mere fact that the farmers of Western Canada once created it should be enough to give them confidence in their power to do what is necessary to make their community what they hope to make it—one of a fair standard of living, of proper education, of decent social amenities. Its creation was the end of the period in which men spoke of their occupation and their children's future in terms of gloom and despair.

CHAPTER X

THE WHEAT POOLS

THE PLAN of all three Western Provincial Pools is essentially the same. They are genuine farmer-owned co-operative institutions, composed of members who sign individual contracts to deliver to the Pool elevators, or to other elevators indicated by the Pool, all the wheat produced by the member, or over the marketing of which he has control. These contracts are all of the same general type, running for a period of five years, and appointing the Provincial Pool the sole agent of the member for the sale of wheat, and as they are executed in accordance with special Provincial laws, and have been found enforceable in the courts, constitute binding agreements. The Central Selling Agency is a joint-stock company, incorporated under Dominion Letters-Patent.

They are all non-profit institutions, the benefit to the member being supposed to take the form of a better net price for his wheat and not that of dividend payment. They all have a small share capital, but depend for the financing of each year's crop on loans made against the wheat in store under the usual Canadian banking practice. The expense of conducting operations is deducted from the price received for the wheat, and is supposed to be in the neighbourhood of ½ cent per bushel. In addition, one per cent. is deducted to form a reserve, and two cents per bushel to provide funds to construct elevators. The Mani-

toba Pool elevators are owned by local associations of members, but in the other Provinces the elevators are owned by the Pool.

They now own or control 155 country elevators in Manitoba, 1039 in Saskatchewan, and 438 in Alberta, out of a total of some 5,400 country elevators in the West, and in addition own or control large terminal elevators, as listed in another chapter.

The Pools are administered by Boards of Directors, chosen by assemblies of delegates elected from the various districts. The Central Selling Agency is controlled by the three Provincial Pools. It owns a seat on the Winnipeg Grain Exchange, and has agencies at important points in the United States, Great Britain, Ireland, Germany, Switzerland, Sweden, Norway, Denmark, Holland, Belgium, Italy, Portugal and the Argentine Republic.

Pool membership is about 40,000 in Alberta, 80,000 in Saskatchewan, and 18,000 in Manitoba, these 138,000 farmers delivering to the Pool 37.3 per cent of all Western Canada wheat in the crop year 1924-25, and 51.3 per cent in 1929-30. Pool sales have increased as follows, in comparison with increase of total crop:

Crop Year	Pool Sales	Total Crop
1924-25	81,666,348 bushels	235,700,000 bushels
1925-26	187,364,999 "	383,100,000 "
1926-27	179,933,435 "	384,400,000 "
1927-28	209,908,536 "	414,800,000 "
1928-29	243,929,491 "	511,400,000 "

Payment is made to the members in instalments, the first of which usually represents what may be expected to be a safe minimum for the year's crop, and the remainder being adjustments.

The object of the various Pools—usually referred to as the Pool, unless it is necessary to distinguish the three Provincial organizations—are defined as being to market their members' wheat in a more orderly fashion, avoiding the dumping of the entire crop on the market as it is alleged was the practice of the private dealers; to render it possible for the individual member to receive a substantial payment on account for his crop without selling it until the time is suitable; to improve the quality and reputation of Canadian wheat; to ensure fair grading and fair dockage; to eliminate speculation and unnecessary middleman handling; and, at least by implication, to sell the crop of Western Canada at a better price.

There can be no question of the success of the Pool in most of these objects up to the present time.

On the point of marketing in a more orderly fashion the Pool claims to have accomplished its object, at least in part. It is difficult to assess such a claim, since the rate at which wheat moves to market in any year is influenced by many factors. The weight of evidence is in favour of the Pool's claim, as is natural when it is remembered that it handles a large percentage of the crop, and attempts to do more effective bargaining than private dealers ever tried to arrange.

The Pool method of payment automatically makes it possible for the member to obtain a fair proportion of the price of his crop early in the season, without regard to its actually having been sold at that moment.

Fair grading and fair dockage as established by country elevator operators is of course not automatically obtained, but it is at least assured that should any injustice be done the farmers as a whole in this matter, it will as a whole be rectified, since even if

every Pool elevator operator were to be knowingly unfair in these regards, the only effect would be for all losses thus imposed on all the farmers to be automatically added to the profits of the Pool's operations, and thus returned to the producers as a whole.

In the matter of eliminating speculation and unnecessary middleman handling there is a more complex problem. It has always been difficult to say exactly what effect speculation, as conducted on the Grain Exchange, has on the price received by the farmer for his crop. In a general way it is probably true that speculation has not touched the farmer, except to the extent that its artificial effect on price levels may cause him on occasion to receive more or less for his wheat, an effect that seems to be usually of short duration. On the whole it is probably true that most of the great profits obtained by successful speculators have come from the pockets of unsuccessful gamblers, rather than from those of producer or consumer.

Unquestionably the existence of the Pool, controlling more than half of the crop, has made it unsafe for speculators to operate except with great caution, since it is certain that the Pool can almost at any time influence the market to some degree. To that extent it is fair to say that the Pool's position tends to protect the producer from exploitation by speculators. It is on the other hand difficult to see how the Pool, without failing in its duty to the producer, can undertake to protect the consumer from exploitation. The Pool has wheat to sell, and should generally desire to see it sold at the best possible price. If successful speculation aids in enabling it to sell its holdings at an artificially high level, it seems scarcely

practicable for it to act so as to prevent this. It is of course true that even such speculation as raises the producer's returns may, by interfering with normal flow of trade, hurt the best interests of the producer, and in so far as the Pool, by its very existence, makes "corners"—speculative control of a whole crop at some stage—impossible or highly risky, it may even be said to protect the consumer from exploitation. In general, without admitting that the Pool can or should eliminate all speculation, it can be said that it has tended to make speculation less dangerous to those who actually produce or consume wheat.

The elimination of unnecessary middleman handling is a clearer field for Pool action, and it is the Pool's policy to do this. That simply means that the Pool offers to sell wheat to any buyer who wishes to purchase at the Pool level of price. That is assuredly as far as it can or should go if it is honestly to act as agent for the producer. It has accomplished definite results in this regard, and is, especially on the Continent of Europe, a valuable factor in giving the buyer confidence in Western Canada as a source of supply. The Continental markets do not purchase on the scale that the British market does, and are therefore more likely to be exploited by middlemen who would not regard the goodwill of the customer as so valuable in those cases as in the case of the great British buyers. It has of course also replaced middlemen entirely during the progress of the wheat from the farm to the port of shipment.

The Pool is therefore in a position to claim efficient action to fulfil its promise in these minor matters. In the major matter of obtaining a better price for wheat, not merely by the elimination of unnecessary charges,

but by better bargaining, the case is one requiring careful study. As a matter of fact, no claim is made officially that this has been accomplished, if only for the reason that at least some of the membership have always insisted that this is not necessary or even in keeping with co-operationist ideals. To them co-operation is an economic system, which is to cure the evils of the competitive system, and should not use competitive methods. Without attempting to discuss this point, which is outside the scope of this work, we may point out that until such an organization of society becomes general it will be necessary for co-operationist institutions to fit their operations to existing conditions, and we may further be permitted to doubt that the entire present membership of the Pool is committed to this theory. The Pool, which is founded in accord with co-operationist principles, must continue to follow them, as indeed it does; in a competitive world, however, it would be absurd for the Pool to neglect any fair opportunity to improve the price obtained by its members for their product, especially as the hope of this improvement is assuredly responsible for the presence in its ranks of many members who are not yet ready to accept co-operationist ideals as in themselves containing a cure for economic ills. The Pool therefore must do, and has done, what it can to better the price of its members' wheat by efficient sales methods; by better bargaining, in short.

The advocates of the Pool seem to offer as their argument to prove success, the course of price levels since its formation—the fact that wheat has sold higher on the whole than immediately prior to that event. That may be true, and may be, in part at least, due to the existence of the Pool but it is not evi-

dence, since it is entirely impossible to say where the price level would have been had the Pool not existed. The critics of the Pool argue, on the other hand, that private grain companies have paid individual farmers more per bushel than Pool members have received; that is unquestionably true in many cases, since at least some farmers sold their grain each year to private companies at the peak of the market, while the Pool grain could certainly not all be sold, as in the case of the 1928 crop, for example, at the temporary peak which existed at the end of June, 1929. That, however, is again not evidence. To make such a comparison we should need full and dependable figures showing the average price per bushel received each crop season by all Pool and all non-Pool farmers. Even with those figures the case would not be settled, since it is certain that if the Pool has any effect at all on price levels the degree of the effect must vary from time to time. It is then possible for a shrewd non-Pool farmer to dispose of his entire crop at the Pool-created peak price, while Pool members must take their share of the whole year's price. That is, to take a case, at least some non-Pool farmers must have sold their wheat at the high price of the end of June, 1929. Is that to be regarded as evidence that the Pool does not improve prices, when we remember that the mere existence of the Pool, and its firm refusal to be stampeded into panic sales earlier in that season, were largely responsible for the sudden reaction from a general bearish wheat market to extreme bullishness?

No. We must find other tests than these for the success or otherwise of the Pool, and fortunately we can find a conspicuous one in the very incident we have mentioned.

The world crop of 1928 was the largest in recent recorded history, and a mere glance at the columns of the press at the end of that year will show that a condition approaching panic existed in all wheat markets. Predictions of eighty per cent. wheat were common. In the spring of 1929 the standard form of attack on the Pool was to say that its policy of not dumping its remaining holdings of grain on the market was suicidal, and even well known leaders of Western opinion took that stand. There can be no question of the truth of the statement that the Pool then acted as a definite factor in the market, for its very critics, who are at other times ready to deny its power to influence the course of prices in the least, were then eager to claim that it was accomplishing the impossible. Within a few weeks the situation, owing to drought conditions in Western Canada, had radically changed, and wheat climbed at once to an unusually high price. There can be not the slightest doubt that the policy of the Pool in holding its wheat at that time was shrewd and effective bargaining, and was definitely beneficial to its members, since such would not, if experience is any indication, have been the policy of all the private grain companies in dealing with such a large block of unsold wheat.

Since then we have seen the Pool assert its position more definitely, and as a result of its policy, Winnipeg wheat has continued to be quoted at the highest recorded premium over that of competing countries. It has not at this writing moved to market at that premium, it is true, and the question of the wisdom or otherwise of Pool policy in this regard remains to be settled by the course of events. We foresee a struggle lasting several months before the effect of the great

crop of 1928 ceases to be felt. It is possible that in the end the Pool may have to sell its holdings at a price not satisfactory to its members, but that will still be in all probability well above the price at which the crop would have moved if Canada had entered into a price-war with the Argentine in the autumn of 1929. No one can say that the Pool can dominate world markets. All that can safely be said is that it can do something no other agency can—endeavour to bargain to its members' advantage; the success or otherwise of the bargaining being dependent on the wisdom with which it is carried out, and no small element of luck.

To sum up, evidence exists that the existence of the Pool can be of value to its membership in obtaining a better price for their product. Such an effect would be extended to all its members, and the sum total of added revenue would be on a large scale. Individual non-Pool producers may succeed in taking advantage of Pool-established prices, and individually actually reap more benefit than Pool members, but should enough of them use their position outside the Pool in this way as an argument against Pool membership, and succeed in creating a general lack of confidence in the Pool, they would merely destroy the special opportunity by which they now profit.

It may be permitted at this point to say that such cases, while naturally lending point to the argument of sincere and convinced believers in co-operationist ideals —that co-operation must be made universal to produce its full effect—are scarcely likely to be frequent and impressive enough to cause many Pool members who are otherwise content with the administration of their enterprise to drop the tangible bone of efficient marketing of the whole Western crop for the shadow of a

lucky chance to sell wheat in an occasional year at an abnormal price. If the Pool succeeds in a steady effort to better the price of its members' grain, it is not to be doubted that the general intelligence of the Western farmer is high enough to enable him to realize the fact.

All this leads up to the most important point of all—is the Pool well managed, and will it so continue? There will be nothing automatic about its success; it will come from constant care and great business ability, or it will not come at all. Until further time has elapsed it is impossible to judge fully, but it may at least be said that the operations of the Pool so far have won much admiration from observers in many lands, and, not least important, from many conservative business men of Eastern Canada, who are at all times confirmed sceptics as to all Western "farmer movements". It is today accepted as a well and carefully conducted institution.

What of the future? It is a democratic institution in type. It is based on over half the farmers of Western Canada. If they are competent to conduct democratic institutions of any kind, they are able to conduct one to sell their product.

There are dangers, however. There are such minor points as the friction that might arise between minor officials and individual members. A tactless or incompetent elevator operator, if he is employed by a grain company, is treated as a necessary evil. If he is a Pool man, a hot tempered member might make him the focus of a campaign of "Pool politics". Governments have before now fallen on such incidents as might daily occur in the administration of this vast enterprise.

Then there is the question of secrecy as to operations.

To sell one-fifth of all the wheat which enters international commerce is a delicate operation, not to be discussed daily and in all its details. Even such a routine fact as the amount of grain on hand cannot safely be divulged at a moment's notice. It might cost millions of dollars for that to happen. Even after conceding unusual average intelligence on the part of Pool members, it is possible to imagine a man, otherwise reasonable, who may find this secrecy about the sale of his product irritating. He may be willing to admit its necessity in principle, but ready to make trouble over its application in his own case.

A more serious danger lies in the fact that wheat has at all times been the greatest political weapon in Western Canada. There has been no easier road to Parliament and power than to find some genuine or imaginary wrong of the wheat grower. Now that wheat tends to become a matter not for Parliament, but for the Pool meetings, will "Pool politics" become a danger? It is possible. It is unknown, or almost so, for this to occur in the case of great private corporations, but they are built to make money, not as the expression of a whole people's ideals, which is very truly the case with the Pool.

Already there are some who argue that the Pool is not adhering to its basic principles. If some one suggested that at a meeting of the Canadian Pacific Railway shareholders, the directors would answer it by quoting the profit and loss account. That is not yet a sufficient answer at a Pool meeting to such a question as to why the Pool has become a member of the Winnipeg Grain Exchange.

All that can be said is that the solution of these and other problems depends on the general good sense of

Pool members. Certainly, it is to be sincerely hoped that there will be some appreciation of the great difference between the conduct of such an enterprise as the Pool and that of, for example, the provincial or national governments. Democratic government is on the whole a success among English-speaking people despite its method of choosing its leaders, rather than because of it. With no wish to take the common pose of treating all politicians as of no value to the public interest, we may say that under our present system of government it is more important to choose good principles than good men to carry them out, which explains why many constituencies vote for men as members of legislatures who have not much personal standing in the community. Such a method of choosing administrators for the Pool would guarantee its failure.

The Pool to succeed must be governed by business men. Its constitution should and will be altered from time to time as the majority of its members desire, but with the constitution laid down, its management must be given a free hand, and judged by results—and its results are, as we have noted above, difficult to appraise justly.

No better example can be adduced of the dangers ahead than the present agitation for the creation—in at least the Province of Saskatchewan—of a one hundred per cent. compulsory pool, a question to which we may be permitted to give some attention, not only as an example of a danger to Pool success, but because of its many advocates, and its vital importance as a basic theory of social and economic structure.

It is typical of Pool dangers, because of the method by which it has been brought to its present active

state of discussion. It was one of the earliest suggestions, when the Pool was under discussion, that it should be made compulsory. It never went beyond the stage of discussion, because the Pool in its present form made such an immediate appeal to popular sentiment that no need existed for definite consideration of how to make it universal. The immediate need was to enrol the volunteers, and to organize the intricate business of selling members' grain. Then, and almost until the present moment, the success of the Pool seemed promising enough to wait for, and on the other hand not well enough assured to be interfered with. By the end of 1927, however, success seemed to have been achieved, and those who had always held to the theory that pooling of wheat must be made compulsory, revived their idea. Their arguments are that, as we have already said, non-Pool producers may actually benefit from the operations of the Pool more directly than Pool members, and that the fact that the Pool is not in control of the entire crop is a weakness which keeps it from realizing its full benefits.

This second argument is possibly sound, but it must be admitted that should the Pool succeed in its present apparent attempt to market the wheat crop of 1929 at a price level well above that which must have been established in a price war with the Argentine in a glutted world market, there would seem to be no doubt of its present ability to affect price levels, and little reason to expect that it could do more as long as its control is confined to the crop of Western Canada.

Exactly how a one hundred per cent. pool could be created by compulsion is not clear. Only legislation could create it, and legislation which in effect would impose on a community a new economic system would

require overwhelming public opinion in its favour. Some 60 per cent. of the farmers of Saskatchewan are members of the Pool, and constitute less than fifty per cent. of the voting strength of the province. Assuming what seems to be far from the truth—the unanimous support of Pool members for the plan—it still must be conceded that the 40 per cent. of Saskatchewan wheat growers who have not seen fit to join the Pool voluntarily are unlikely to accept compulsion readily. Since the plan is as we have said no less than an experiment in a new structure of society, it is to be expected that at least some of the voters who belong to other classes would be bitterly opposed to it. In short, under present conditions it is difficult to believe that such legislation could be passed except after many years of struggle—probably years enough to justify the statement that the Pool would have passed any stage at which compulsion could assist it before compulsion could be applied.

There remains the important question as to the competence of the legislature of Saskatchewan to pass such an act. That is a question certain to be fought to the court of last resort, and one on which no entirely safe opinion could be given by the most learned counsel. Of course to suggest that such legislation might be passed by the Dominion Parliament is to show an entire lack of appreciation of Canadian political conditions.

Even were such legislation passed and found *intra vires* of the legislative body, there would remain the difficult question of enforcement—one which might well appal the most dictatorial of governments.

It may safely be said that the effort required to pass such legislation and make it effective would suffice to

convert to Pool principles every farmer in the Province who could ever be brought to voluntary Pool membership—probably enough to make compulsion wholly unnecessary, since it is certain that private grain companies are not going to maintain purchasing and handling organizations in any district for the crops of a mere handful of irreconcilables.

What is most alarming in the case is not the prospect of either success or failure in obtaining hundred per cent. co-operation, but the type of campaign employed to advocate it. There is no need to question the entire sincerity and honesty of the men who have led the movement. Indeed, many of them are of such standing in their communities as to make such questions ridiculous. Nor can their loyalty to the Pool be questioned, for many of them were among the founders of the present institution.

Nor is it necessary to question their entire right to advocate either a change in the type of the Pool, or a change in the whole structure of society. Those are proper questions for free men to discuss in a free country.

The question is one of changing the laws of property in a community, to enable one institution to function more efficiently—perhaps. A reasonable course in bringing about such a change would have been to proceed first to have it approved by the institution to be benefited—in this case the Pool—and then to proceed to convert public opinion to the need of such special legislation. It was by that road that the question was first approached, an effort, soon defeated, being made to have the plan adopted by the Pool delegates at their provincial assembly.

The course of wisdom in the face of such a defeat

would have been to accept it philosophically for the moment, and to continue—within the Pool—the effort to educate those who did not accept the idea. In this case, this was at first apparently done, but before long the matter ceased to be treated as one of Pool policy, and was made the subject of a public campaign, in which it was advocated throughout the Province that legislation to assist the Pool should be passed, which the Pool itself had not considered it wise to request.

The well-known American organizer of co-operatives, to whom we have already paid a tribute and who had been very active in his professional capacity in the formation of the present Pool, was brought into the field by a powerful association of farmers, a body which probably consists almost entirely of Pool members, but which has no official connection with the Pool. His well-known personal magnetism, and his skill as a propagandist have been employed to great effect at public meetings, where the present management of the Pool have been criticized in no measured terms, not for failure to conduct the business of the Pool with skill and competence, but for refusal to support an agitation to obtain a change in the type of the Pool which had already been voted down by a meeting of authorized delegates to whom they are directly and solely responsible.

Should this situation represent a condition which might recur, the Pool must fail. Without regard to the question of the correctness or otherwise of co-operationist theories, we must admit that the Pool, in addition to being a co-operative experiment, is one that is not being tried in a vacuum, or on an otherwise uninhabited island, but in a country where it must compete with non-co-operative institutions, and in a world

far from converted as yet to the general principles of co-operation. It deals on a commercial basis with great financial institutions, with private companies, and with all the organs of the individualistic, capitalistic and competitive society in which it exists. It should be possible for it to meet these conditions, and to adapt its measures and policies to the case, without abandoning any hope, if that is its ideal, of demonstrating to the world the actual economic advantages of the co-operationist theory. That is what every successful co-operative society in the world has had to do. It is highly improbable that the pioneer societies would be as strong as they are today if they had been forced constantly to limit their skill in purchasing by care as to the co-operationist status of the houses who supply them, or to take the time and skill needed for the conduct of their business to devote to campaigns looking to the conversion of the whole retail trade of a country to co-operation by compulsion.

Fortunately, the leaders of the movement to obtain the hundred per cent. compulsory Pool have risen to the occasion, have appreciated the danger into which they were drifting, and have, without abandoning their plan, decided to confine their activities in this connection to attempts to bring about a change of opinion within the Pool. This is a most promising sign, and we feel an index to that fundamental good sense of the Western farmer on which we lay stress in various places.

In so many words the great danger of the Pool—a danger to be much increased if pooling were universal and compulsory—is that the Pool may be treated as a political and not as a business institution. No such body can function without creating some minor fric-

tion and discontent within itself. At present it is possible for a discontented member to feel that in any case his contract will terminate some day, and need not be renewed unless he wishes. If he is unable to take that comfort to his soul he may decide that to correct a grievance, real or fancied, he must make himself, or some one in whom he has faith, the delegate from his district, or even a member of the board of management. That is a poor spirit in which to choose the men who must conduct the affairs of this tremendous organization.

The Pool has been fulsomely flattered and bitterly attacked. A fair description—avoiding either extreme—would be to say that it is the wisest move ever made by the Western farmer, and his brightest hope. It seems to have every prospect of success, and deserves its chance. Its greatest danger will be from within, but it seems scarcely likely that that danger will become real.

The future policy of the Pool in its external relations must of course be guided to some extent by factors which it does not wholly control. Elsewhere we have discussed the Winnipeg Grain Exchange. At present the Pool has a seat on that body—another subject of some criticism from extremists. That is necessary as long as the Grain Exchange occupies its present position. Should the Pool absorb too great a proportion of the Western crop to permit the private companies to function, the Exchange would vanish. The same thing would probably occur if present tendencies to the consolidation of private companies should be carried to their logical conclusion and a single great corporation—more efficiently managed than has been possible with a multitude of small ones—should be formed to handle

all grain whose producers do not wish to join the Pool.

We discuss elsewhere Pool movements in other countries, and also possible reactions in the British market to their success. Such factors as those must tangibly affect Pool policies.

It is a great experiment. Its success might well prove one of the greatest constructive factors in the development of Western Canada and influence the whole world position of agriculture; its failure, which seems hardly conceivable, would be a disaster.

CHAPTER XI

WHERE WESTERN WHEAT GOES

WHERE does Western Canada wheat go? By what roads does it travel, and where finally is it eaten?

It constitutes perhaps forty per cent. of all the wheat that enters international commerce, and it is almost all of one kind in a world which uses many kinds, and blends them all to make the flour that each market wants. For this reason the simplest answer is that the crop of Western Canada disappears into the world's supply, and reaches all that portion of the world which is not in the habit of eating only its local wheat.

It is highly possible that a traveller might leave the Prairies and voyage to all those portions of the globe where white men customarily resort, and in but a few places be sure that in the bread at his daily table there was not a grain of flour milled from the wheat of his own neighbourhood.

It would take many volumes to follow Western Canada wheat into all its markets, and even then the task could not be accomplished, since even modern statistical skill is unable to record all the details of such a world commerce. Indeed, it is difficult to accomplish our present purpose—of setting out in a clear and simple form a record of the main movements of the wheat from the Prairie, a general outline of the roads by which it travels, and of the markets to which it is destined.

The most complete description of the subject that can at present be obtained, and a wonderful example of statistical care, is the annual Report on the Grain Trade of Canada, issued by the Dominion Bureau of Statistics. It is of course on that document, and not on independent research, that this chapter is based, although we make certain independent and possibly original deductions. The Report, however, is by its very nature limited to certain forms of statement. It is an official document, and must record each figure, each year, of each phase of this complex commerce. Now wheat differs from toothpaste or matches. Those commodities follow established channels. A village in India may need matches. It may be a new departure, a substitute for flint and steel. It will buy perhaps Swedish matches. In a year or two there is an established trade there in them. Then perhaps a new match company at Calcutta enters the business and replaces the imported article. On the whole, nevertheless, the trade will always remain easy to record, even as to changes in volume and in source of material.

The same village, however, may eat Canadian wheat in 1923 and not again until 1933. In the interval there will not be a replacement of Canadian wheat by Australian or Argentine grain, but merely a cessation of imports because domestic crops are large enough.

Or a miller at Buffalo, catering to the domestic flour market of the United States, may need a little more high protein wheat this year than he did last, because the United States crop may be off in quality. He will have to figure very carefully, because at that moment the price of Canadian and Argentine wheat, with reference to protein content, may be very different

in its relation to the United States price than it was at this time last year.

Or in France, which normally produces somewhere near its own requirements of wheat, the crop may be short. The French Government at the moment may be one which holds office by virtue of the farmer vote. In that case it may refuse to remove the duty on imported wheat, which it might have done had it been of a different type. Or Lithuania may this crop season have a trade treaty with Australia and next year with Canada.

Such changes will affect the trade in matches, but not in the same way that they will affect the commerce in wheat.

Therefore, to tabulate the figures of the official report would be to give a poor picture of the movement of wheat from Western Canada, for even if a series of years were listed it would be difficult to establish an average movement which bore any relation to the real truth. Moreover, it would be a very difficult thing even to get any real view of this commerce from it, without very careful study, for there can be no doubt that the routing of the crop of Western Canada to its markets is one of the most involved movements to be found anywhere in the world of commerce.

For that reason we have decided to attempt to picture the movement of wheat by simply taking an imaginary year, somewhere about the date of this book, assuming that in that year the Western Canada crop was of 450,000,000 bushels, and trying to show how such a crop usually would move to market. It is a risky experiment at that, for to make it accurate even as a theoretical example in economics we should have to assume also a world crop condition, and a world mar-

ket condition. On the whole, however, we believe that the picture we give is accurate enough, in that it will furnish to the reader who has not made a special study of the subject, a truthful general impression, while the specialist will naturally prefer the exact and detailed figures of the official reports.

Of our crop, some 40,000,000 bushels will be needed in Western Canada for seed; 12,000,000 for Western Canadian milling into flour for domestic consumption; and if the price is such that recent progress in selling Canadian flour in the Orient is maintained, about 7,000,000 bushels will be milled in Western cities for export as flour.

A very small amount will be exported to Western United States points—perhaps rather less than will be imported, and in any case not over 100,000 bushels.

A 450,000,000 bushel crop is a large one, and it is possible that world market conditions may justify retaining a portion of it to increase the carry-over. Let us assume that this is done to the extent of 31,000,000 bushels, and that a balance of 360,000,000 bushels is what the West will have to sell.

In many places in this work we have to deal with the considerations that influence the choice of an eastern or a western route for wheat for export. We shall have to assume this division, and may reasonably use the 1927-8 figures, and list about 80,000,000 bushels as going to Vancouver and 7,000,000 to Prince Rupert.

At this point we may remark that nothing better illustrates the advantageous position of the Pacific Coast ports than the fact that we know automatically that every bushel of wheat moving West must, under present conditions, go to swell their commerce, and

must, except as far as it is needed for local consumption, pass over their docks or through their elevators. How important is this condition will be appreciated when we come to see how little of the wheat which moves East can be safely assumed to be a contribution to Canadian commerce. This is of course due to the fact that the export freight rates on wheat routed West apply only on exports through Canadian ports, which is far from being the case on east-bound grain.

Of the wheat which reaches Vancouver some 45,000,000 bushels will go to the United Kingdom through the Panama Canal. 35,000,000 will go to other countries, in addition to the flour milled for export in Western Canada. Of that perhaps ten or eleven million bushels will be sold to Japan.

The division of the exports at Prince Rupert will be about the same, say 4,000,000 bushels to the United Kingdom and 3,500,000 to other countries.

When we turn East we face a very much more complex commerce. We now have left two hundred and seventy-three million bushels, all of which will pass at once to the Head of the Lakes, with the exception of perhaps a hundred thousand bushels which goes direct from Winnipeg *via* Armstrong, Ontario, to Quebec on the old National Transcontinental Railway. This represents the nucleus of the traffic which the port of Quebec hopes to build up under the new low rate provided by the Board of Railway Commissioners. It is impossible to be certain in such a case, but it seems improbable that the movement will become important. In addition, the movement to the Head of the Lakes includes a small amount—perhaps three-quarters of a million to a million bushels—which does not reach the Canadian ports of Fort William and Port Arthur, but

goes to Duluth. Since this latter item merely re-enters the main stream later, and neither item is considerable, we shall still continue to use our original figure as showing the amount of wheat which will reach the Twin Cities to be forwarded East.

Of that, it may be, four to thirteen million bushels will move East by rail. To Maritime ports in Canada perhaps half a million bushels—perhaps three million—since it varies considerably. It is this commerce which the Maritime ports hope to stimulate by their application to have a low rate—the same that is now ordered to apply to Quebec from Armstrong—provided by the Board of Railway Commissioners. We have discussed this question elsewhere.

To Quebec again a small movement via Sioux Lookout and Armstrong.

To the domestic market in the East, perhaps three million; to United States Atlantic seaports, possibly nothing, possibly six million bushels; to domestic points in the United States, a small shipment in some years. Let us assume three million to United States seaboard, three million to Eastern domestic markets, and one million to Maritime ports.

At present, and subject to the ambition of Quebec to have more of a share in this trade than it now obtains by the water route, the whole seven million bushels moving East by rail will be moved in winter, the remainder going forward by steamer on the Lakes during the season of navigation. This is interesting, since it suggests that even if the Maritime ports should obtain their ideal of a total removal of all charges for moving grain from Montreal or Quebec to St. John or Halifax, it would still be the case that the normal movement of grain would be from the Head of the Lakes by

water, in which event the grain would arrive at St. Lawrence River ports as at present, and would not be likely during open navigation by that route to be uselessly transferred to Maritime ports. The small amount now going all rail from the West to United States Atlantic seaboard points for export in some years might be diverted to Canadian Atlantic ports, but that is all.

The present Maritime port trade in grain is not produced by movement from the Head of the Lakes in winter, but by accumulating grain in summer and fall at Georgian Bay ports, and a change in rates from the Head of the Lakes could not increase this movement.

Of the 266,000,000 bushels for which we must still account, some 25,000,000 will disappear in the process of cleaning the grain and separating marketable from unmarketable wheat. There then remain 241,000,000 bushels of our assumed crop which should be loaded on grain-carriers at the Head of the Lakes, and in accounting for its disposition we approach one of the most complex movements of a staple commodity to be found in the world of commerce. As it is analyzed, we feel that the argument advanced in this work—that wheat once loaded on a ship at Fort William or Port Arthur is essentially exported from Canada, to be reimported perhaps later—will be shown to be true, and of great importance in the case.

About 96,000,000 bushels of our crop will normally move East by steamer to Canadian ports at the Eastern end of the Lakes, and some 8,000,000 bushels will go direct by water to Montreal and Quebec. The balance, 137,000,000 bushels will go to United States Lake ports, less the negligible quantity which in some years moves direct from the Head of the Lakes to Europe.

Of the wheat going to Eastern Canadian Lake ports we should expect some 40,000,000 bushels to be transferred to what are known as the Georgian Bay ports—Depot Harbour, Midland, Port McNicoll, Tiffin, Collingwood, and Owen Sound, with which we include Goderich and Sarnia. Of that some 11,000,000 bushels would be absorbed in local consumption or milling, perhaps 2,000,000 bushels will go—in winter—to the United States seaboard, probably Portland, Me., and 9,000,000 in the same season to Canadian Maritime ports. The balance, 18,000,000 bushels, will proceed by rail to Montreal for export, or be absorbed in domestic consumption in the East.

The remainder of the grain shipped to Eastern Canadian Lake ports—56,000,000 bushels—will go to Port Colborne, where it will be transferred to ships capable of negotiating the waters of the old Welland Canal, Lake Ontario and the Lachine Canala, to Montreal.

At this point we must add to our supply 25,000,000 bushels produced in Eastern Canada, which now becomes inextricably mingled with the Western crop.

This gives a total arriving in Eastern Canada made up as follows:

Rail from Head of the Lakes	4,000,000	bushels
Georgian Bay ports	40,000,000	"
Port Colborne	56,000,000	"
All-water direct to Montreal	8,000,000	"
Eastern crop	25,000,000	"
	133,000,000	"

From this we may deduct the 3,000,000 bushels shipped by rail from the Head of the Lakes for domestic use, 11,000,000 set aside at Georgian Bay ports for this purpose, and another 56,000,000 bushels

of the Lake arrivals, making a total of 70,000,000 bushels to be deducted before export. Of this perhaps a million and a half bushels will be used for seed in Eastern Canada, rather less than half of the remainder milled into flour for domestic use, and the balance into flour for export.

This leaves to arrive at St. Lawrence ports for export 51,000,000 bushels, to which will be added 40,000,000 bushels of the 137,000,000 shipped to American Lake ports from the Head of the Lakes, now re-routed with perhaps 80,000,000 bushels of United States wheat for export via the St. Lawrence, this bringing the total of Canadian wheat which arrives at the head of navigation on this route to 91,000,000 bushels.

Of this, however, during the summer some three and one-half million bushels may go to Quebec, and possibly two million be transferred to St. John during the winter. A further small movement—say two million bushels—might go to Portland, Me., where the old Grand Trunk Railway reaches open water in the winter, leaving to be exported from Montreal 83,500,000 bushels, of Canadian wheat.

To tabulate these figures gives the following result:

Total crop, Eastern—Western	475,000,000	bushels
Added to carryover	31,000,000	"
Used for seed in the West	40,000,000	"
Milled for flour for domestic use in the West	12,000,000	"
Milled for flour in the West for export	7,000,000	"
Exported via Vancouver	80,000,000	"
Exported via Prince Rupert	7,000,000	"
Disappeared in cleaning, etc.	25,000,000	"
Milled for domestic use in the East	31,000,000	"
Milled for flour in the East for export	37,500,000	"
Used for seed in the East	1,500,000	"
Exported via Montreal	83,500,000	"
Exported via Quebec	3,500,000	"
Exported via Maritime ports	12,000,000	"
Exported to United States and not returned	104,000,000	"

It is now necessary to go a step farther to see what becomes of the 104,000,000 listed above as exported to the United States. It is made up of rail shipments from the Head of the Lakes to United States points, rail shipments from Georgian Bay ports to the United States, and rail shipments from Montreal to Portland, Maine, but the great bulk of it is the Lake shipments from Lake head to Buffalo, etc., less the amount re-routed thence to Montreal.

Of the total some 8,500,000 bushels will be used in the United States for local consumption, and incidentally to furnish the American wheat growers, or rather those who exploit them in politics, with choice ammunition. 10,000,000 bushels will be milled into flour there to be blended with their own product, and the rest re-exported. 64,000,000 bushels will go to New York for overseas shipment, 10,000,000 to Baltimore, 7,000,000 to Philadelphia, 2,500,000 to Boston, and 2,000,000 to Portland, Me.,—a total of 85,500,000 bushels, which, added to the 186,000,000 bushels exported from Canadian seaports, gives a total exported overseas of 271,500,000 bushels, plus an export to the United States for consumption of perhaps eighteen and a half million.

To those who have followed us through this maze we again offer the reminder that these are not the statistics of any given year nor of any period of years. Roughly, this is what occurred to the crops of 1926 and 1927. It is presented in this way so as to show, we believe, such a picture of the movement of the crop of Western Canada as to limn it in true relief—to make a picture, not a diagram. We feel that those who read it will have a clear grasp of the essential truth of the case. For exact figures, recourse must be had to the

careful and voluminous reports issued by the Dominion Bureau of Statistics.

A further fact of prime importance is that when we come to consider where these exports now go for ultimate consumption we are entirely at sea. Every shipment of wheat leaving Canada for any foreign destination is reported to the Customs officials, and returns are in due time available of the sum of these reports. Unfortunately, however, wheat, as we have already suggested, does not follow well beaten paths entirely. A shipment may be made from Buffalo to New York, ostensibly for export to the United Kingdom, but may be diverted to any other country, too late for the Canadian Customs to record the fact. Thus, the Customs figures in the case of the 1927-28 crop exporting season showed 201,732,699 bushels shipped to the United Kingdom. Yet when we add to 66,404,081 bushels actually leaving Canadian ports for British ports the 44,666,861 bushels actually leaving United States ports for the same destination according to the figures of the United States Customs, we have only 111,070,942 bushels. Further, as explained in another place, shipments even leaving a North American port and going direct to Hull may not be wheat which is actually entering the United Kingdom for consumption.

It is regretted that we cannot trace accurately the final sale of Canadian wheat abroad, but it would not in any case throw much light on Canada's place in the world wheat situation, since the many factors to which we have referred earlier as directing the flow of each crop would probably prevent our giving a picture of distribution which would have any value. It is notable that in some cases the Pool has sold more wheat to certain countries than the official figures show as the

total of Canadian exports to them. We suggest that the greatest care be used in making any inferences from the admittedly inaccurate statistics on this point which are available.

An outstanding point in all this complex movement is that we must consider wheat once it reaches the Head of the Lakes at Fort William or Port Arthur, or while it is in elevator at a Georgian Bay port or Port Colborne, or even after it is in elevator at Montreal, as essentially in international commerce. It is at all times subject to the economic and other laws of such commerce. It is essentially beyond the control of the Canadian Government unless it is taken for domestic consumption or for the Canadian milling industry.

It is for this reason that we have argued elsewhere that to attempt, after it has reached international position, to route it or to control its movements by changes of freight rates or other measures, is impossible. A country can control the direction of its internal commerce by such means, but to attempt to deal with wheat after it reaches the Head of the Lakes by the actions of the Canadian Board of Railway Commissioners is as futile as would be a similar attempt to control it on its passage in ships from Vancouver on the high seas.

The failure to appreciate this fact has been at the root of much waste of time and energy. It leads the port of Quebec to believe, for example, that by a change in freight rates alone it can be placed in a position to compete with Montreal. Wheat, however, is controlled in its movements by many things besides freight rates. A shipper who has wheat to forward before he has actually consummated its sale—the normal condition—will move it in the direction where it

will be best placed to obtain the advantage of many offers. He will move it in the direction where he can as easily as possible have a choice of ports, since the amount of ocean tonnage available may be an important factor in making the profitable sale of the parcel easy. At present, and as far as can be seen for many years to come, the shipper will, as far as possible, move his wheat to the Head of the Lakes, and then to the group of elevators located at the Eastern end of the Lakes, at Georgian Bay ports, Port Colborne and Buffalo.

He may, after the new and deeper Welland Canal is in operation, move more of it farther East—say to Prescott, Ont.,—than he does at present, but probably not much more. At present some twenty to forty million bushels of wheat are forwarded to Buffalo and then re-routed to Montreal, because Buffalo is situated so that wheat once there is again in a good strategic position—able to take advantage of openings in the United States milling industry, or to be switched to New York, to Baltimore, Philadelphia or even Norfolk, Va. He will only move it to Montreal as far as he is satisfied that he will not find himself caught with it on hand there with no demand for it in foreign ports to which he cannot at that moment find cheap shipping facilities from Montreal.

It is also possible that the opening of the Hudson Bay Railway may cause wheat to some extent to be held even as far back as Saskatoon or Moose Jaw in the interior public elevators. This would be an ideal arrangement, as then it would be able to take any route to market. Naturally this would not come into effect except as the tonnage of shipping using the Hudson Bay route may increase.

The coming of the Pool into the situation may somewhat change this condition, since, controlling as it does a large enough block of wheat that it cannot all be left aside by purchasers indefinitely, it can place its wheat further forward on the road to the market than would be safe for smaller shippers; but even the Pool will not be eager to place all its wheat in elevators at Montreal except as the shipping situation and the overseas market seem to make that safe.

This consideration also explains, as we enlarge upon in another place, why Vancouver still handles but a portion of the wheat on which it has a considerable advantage in freight rates; why we are of the opinion that the shipment of wheat by the Hudson Bay route will be a commerce of slow growth; and why the Pool can use Prince Rupert as an exit more safely than private exporters can.

The movement of Canadian wheat to market is a complex and intricate business—a commerce large enough to be a main item in the nation's business. It is probable that it imposes no charge on the producer that is not fair, and that on the whole, no more of it goes through foreign channels than is inevitable. It varies in volume, in season and in route, to meet constant fluctuations in demand, in market conditions, and in those factors in its cost which—as ocean freight rates—are not easily controlled by public authority. On the whole it is conducted with great skill and its tremendous complexity is not an accident, but a result of that skill applied to a different problem.

We wish again to point out that the figures given to show the distribution of our assumed crop of 450,000,000 do not attempt to show what has ever occurred in the case of any crop. Date of harvest, grades, size

of crop, market fluctuations, shipping seeking employment, dates of close of navigation on the Lakes or the St. Lawrence—any of these may cause abnormal movements by various routes, or new combinations of routes. What we have tried to illustrate is how the various factors usually affect the mind of those who have the choice of routes, and the normal effect of the resulting decisions.

It is vitally important that fuller account should be taken of these factors in the future than has been the case in the past.

CHAPTER XII

THE WORLD WHEAT SITUATION

TO ATTEMPT to trace the whole story of world wheat production and distribution would be to prepare many volumes filled with a maze of figures. In the end only a trained student with ample time at his disposal could obtain from them any real picture of the whole situation.

For these reasons we shall adhere to the method used elsewhere in this work, and attempt to present a general picture by verbal description, illustrating that by statistics given in round figures and approximate quantities, omitting unnecessary facts, and providing only the data necessary to a general grasp of the case and to a clear understanding of the conclusions to which our study may lead us.

Wheat is produced and consumed in all parts of the world. Its production is usually set at somewhere between 3,500,000,000 and 4,000,000,000 bushels annually, although this figure is undoubtedly too small, as it cannot in the present state of international statistics include China, for example, nor many other smaller producing areas. It is, however, the figure including fairly exact statistics from all countries which are either important producers or consumers of wheat which moves through the channels of international trade. It is in fact a correct figure of all the world wheat production which matters in our study.

Of that amount, however, only from 600,000,000 to

675,000,000 bushels is exported, the remainder being consumed in the lands of origin.

Of this smaller amount, in recent years an average of about 245,000,000 bushels has come from Canada; about 135,000,000 from the Argentine Republic; some 130,000,000 bushels from the United States; and 60,000,000 from Australia—a total of 570,000,000 bushels, which indicates that the eighteen or twenty other exporting countries, none of which supplies on the average more than 17,000,000 bushels per annum, cannot be regarded as of great economic importance in the trade, especially since many of them, as France, Germany, Belgium and Holland are much greater importers than they are exporters. In these cases of course it is a question of exchanging a surplus of one grade or type for requirements of another.

Of course every bushel exported must be imported elsewhere, but statistics are not available as completely in that case, although the error is trifling. Importations, however, are more scattered, and it is necessary to tabulate them:

Average imports of wheat in recent years:

Great Britain and Irish Free State	205,000,000	bushels
Italy	90,000,000	"
Germany	70,000,000	"
France	68,000,000	"
Belgium	42,000,000	"
Holland	22,000,000	"
Japan	21,000,000	"
United States	20,000,000	"
Switzerland	16,000,000	"
Greece	13,000,000	"

Other European countries	41,000,000	"
Other non-European countries	37,000,000	"
A total of	645,000,000	"

In addition some 188,000,000 bushels of wheat move in international commerce as flour. Of that, roughly one-half is ultimately consumed in Europe, and the rest in other parts of the world. The chief exporters, providing about half the total, are Canada, averaging 7,370,000 sacks, representing some 45,000,000 bushels; Australia, 3,300,000 sacks, or about 20,000,000 bushels; Argentina, 1,100,000 sacks, or about 7,000,000 bushels; and the United States 9,535,000 sacks or 60,000,000 bushels. In addition it is to be noted that many countries, especially Great Britain and France, export a considerable quantity of flour milled from imported wheat, the amount in the case of Britain being some 1,800,000 sacks, equivalent to some 11,000,000 bushels.

This alters the figures of exports appreciably, giving us for Canada, wheat and wheat milled into flour, 290,000,000 bushels; for the United States 190,000,000 bushels; for Argentina 142,000,000 bushels; and for Australia 80,000,000 bushels, or a total for these countries of 702,000,000 bushels out of a world trade of 833,000,000.

The distribution of flour to importing countries is much the same as of wheat, and it is therefore unnecessary to give it in detail.

It is evident then that world consumption of wheat about balances world production—a platitude which we do not hesitate to record, since to listen to much of

the discussion current today one might imagine that somewhere in the world millions of bushels of wheat were being produced which would not find a consumer.

From these figures we note that Canada is much the largest single exporter of wheat, and contributes no less than 35 to 40 per cent. of all the wheat which enters international commerce, although her total production is exceeded normally by that of the United States and Russia. We also note that the great present market for wheat is Europe, which takes roughly seven-eighths of all the wheat exported. Great Britain and the Irish Free State combined in turn take more than one-third of European importations.

This gives a generally accurate picture of the present position of world trade, and we may now proceed to consider what conclusions we can form as to its future trends when we examine in greater detail the conditions of the various countries which now contribute largely to the export supply, or provide the greatest markets.

In the first place, what is likely to be the trend of consumptive demand? Is the market for wheat, especially in Europe, to be considered as likely to expand? Or is the time in sight when consumption will become stationary, or decline, or when domestic production of wheat or other foodstuffs will tend to free Europe from the need of importations?

There are three factors in the import demand of any country for wheat. First, there is the size of the population. Next there is the purchasing power of the average individual. Third, the relation of imported wheat in nutritive value and in comparison of cost to domestic wheat and other foodstuffs. Speculation on the future course of any one of these factors in the

case of even a single country might easily occupy a volume and the answer still be speculative. Here we must of necessity confine ourselves to a mere outline of the conclusions of many specialists.

Students of population growth have since the end of the eighteenth century produced many and varied prophecies, most of them tending to present an alarmist picture of a world in which the unchecked increase in the numbers of humanity will end in famine. In recent years there has been an attempt to place the question on a more scientific footing, and to substitute for simple operations in multiplication, formulæ of a more complex type. Census records of authentic value are, however, not generally available except in very recent times, and we are still too far from an exact knowledge of the laws of life to be prepared to accept without question formulæ for the growth of population deduced from experiments with insects or with yeast cells. Yet the recent work in this field of a distinguished American biologist has produced a profound effect in the scientific world, and may well be taken as being, if not a precise guide to coming events, a reasonable assumption.

Dr. Raymond Pearl's investigations would lead to the conclusion that the population of the world is, as a whole, increasing at a rate described by a certain formula, and is at present not at a point on the curve of increase where the rate will slow down very rapidly; while the population of Europe, and more especially of the countries which are the great importers of wheat, is further along in its cycle, in some cases—as in France—almost at a standstill, and on the whole, likely to lessen in rate of increase from year to year, but not very rapidly.

While therefore we hear a great deal about the declining birth-rate in various countries, we may assume that the effect of this will be offset by the factors which tend to prolong the average duration of life, and on the whole the population of Europe will increase, in the immediate future, almost as fast as it has in the past twenty or thirty years. During that period, Europe proved able to absorb annually the increase in surplus production of foodstuffs, and may be expected to continue in that ability for some years to come.

It is perhaps even more difficult to forecast the course of the economic life of Europe. Since the Great War, and despite the economic burdens which it imposed, there has been a visible increase in the standard of living in Europe as a whole, and most markedly in Great Britain. This is a fact admitted by every observer familiar with conditions there before and since the great struggle. It is difficult to trace it statistically, since the question is a very complex one, but there is every reason to believe that the fact exists. It is even more difficult to explain its existence in such a manner as to permit us to deduce the future course of events. All that can safely be said is that Europe as a whole seems today better clothed and better fed than at any prior time, and that social, political and economic conditions seem stable enough to warrant the assumption that the improved standard is likely to continue for many years to come.

On the point of possible substitution of domestic wheat or other foodstuffs for imported grain we are even less able to speak with certainty. Great Britain is probably alone among European countries—we omit Russia at this stage—in being able to greatly increase

the production of wheat, or indeed of agriculture in general, without a general change in economic conditions.

There is no such thing as a point beyond which a country cannot be farmed more intensively, nor is there a country in the world in which there does not exist land not now in agricultural use which might be turned to it. Even China devotes to cemeteries and to private pleasure gardens, land which might produce food. Yet in every country a line can be drawn to define the limit to which agricultural production can be carried without the resultant earnings of the farm worker being so entirely out of proportion to his possible income from other activities as to make it automatically certain that he will be unwilling to continue to till the soil. A survey of rural conditions in Europe would make it appear that the intensity of agriculture has, in at least the most advanced industrial countries, reached that point, as is shown by the fact that exodus from farm to city is as marked there as in North America.

The answer is made there as here, that science, the substitution of profitable for unprofitable types and methods of agriculture, the replacement of hand by machine labour, and better soil treatments, will correct the unfavourable balance and make agriculture as profitable as any other industry. We have in other places discussed this question as it applies in Western Canada, and there is no reason to doubt the applicability of our conclusions to European conditions.

In Great Britain there is unemployed labour and unemployed land which, by skilled statesmanship, might be brought together. In Continental Europe that condition does not in general obtain, and there is at

the moment more prospect of further reduction in agricultural production than of an increase.

It must not be forgotten, of course, that a change in generally prevailing prices of foodstuffs would alter this, and by adding to the returns of agriculture, and at the same time to the cost of living of the urban worker, tend to redress the balance. Against this is the example of Great Britain at the present time, where agricultural wages well up to the urban average of non-specialized workers, with reasonable assurance of permanent employment and with housing of average quality, fail to attract unemployed urban workers. The answer to that is always that the "dole" makes it possible for the unemployed city labourer to evade the necessity of the choice between want and a return to his ancestral occupation. That is no answer, however, since the "dole" is not a gift of some ruling class, but a measure evolved especially to provide for men who had asserted in plain terms that if faced by the need to return to the soil they would attempt even revolution.

Considering, then, all these factors, we may conclude that the increase in price of foodstuffs necessary to produce a general expansion of agricultural production in Europe, would have to be of such proportions that if it were not met by corresponding increases in other price levels—and its effect nullified—it would be sufficient to stimulate production in other countries (such as Western Canada, where agriculture has not yet come as close to its maximum production under present economic conditions as is the case in Europe), more rapidly than on that continent.

On this point we also suggest consideration of possible absorption of increased returns in land rent

rather than in labour wages—a point discussed more fully in connection with Western Canada, but even more likely to affect production in Europe, where land ownership as an economic status is both more common and more firmly established.

A definite trend towards high tariffs on imported wheat is at present shown in Europe, but we can only say that this is not certain to attain the results aimed at.

When we turn to substitution of other domestic foodstuffs for wheat, we are faced by the obvious fact that this, to be useful, is merely another form of intensification of agricultural production. An acre of potatoes, it is often pointed out, will feed many times as many mouths as an acre of wheat, but it is usually forgotten that it will need many more hands to produce it. The balance of the world's diet, as between its many constituents, is not an economic accident, and to alter it by propaganda or legislation would be but to rob Peter to pay Paul.

To sum up this portion of our discussion, we must assume, in the absence of definite evidence to the contrary, a continuance of present biological and economic factors in the life of Europe. In that case, the importation of wheat, as long as it is procurable at prices not too far above those which have prevailed in recent times, will continue and increase to some extent. Evidence of a tangible nature exists to that effect in the slight, but visible increase of consumption of wheat per capita in European countries generally since the War.

We may now consider other possible markets. The recent development of an export trade in wheat to the Orient has been given much publicity and has led to

many calculations as to the tremendous potential demand. It is easy to estimate how many millions of people live in China and India, and how many bushels of wheat they might consume if each one ate one ounce of flour per diem. It is not as easy to picture the economic revolution required to place them in the position to be able to make that addition to their diet or to so revolutionize their national habits as to cause them to use wheat in those large areas where it is not the usual cereal.

Japan, which is the Oriental country closest in type to Western lands, is far more likely rapidly to increase its demand for imported wheat. In all cases, however, the situation is that wheat of the lower grades—Nos. 5 and 6—can be absorbed by the Oriental market in great quantities when the price of No. 1 is at about $1.25 and under; that Western economic systems now affect a very large population on the coast and along the great rivers of China; that Japan is able to consume an increasing quantity of wheat; and that the whole outlook is very promising, but that owing to the low price which that market can pay, it cannot be regarded as a major factor in the effort of Western Canada to place its agriculture on a satisfactory basis, although offering an excellent outlet for a low-grade grain.

Let us now turn from the consideration of consumptive demand to that of the productive capacity of competing countries, first, however, dealing with the great republic to the south, which can be regarded as today a competitor in production, but possibly tomorrow a market.

Canadian consideration of the economic position of the United States is never unbiased. Alternately we

attempt to pervert the facts, according to our mood of the moment, to show at one time that the great country which stretches along our southern border is so far in advance of us in progress and in wealth that we should feel humiliated by the comparison, or at another moment to prove that it is a country in very much the same economic position as this, and our great competitor for markets.

A fair estimate of the true position would seem to show that it is—in effective and useful area—a much larger country than Canada, and somewhat further along the road of national development. Now, national development can only be created by the conversion to use of untouched national resources, and there is reason to say that in the United States that process has now reached the point where division of natural wealth is completed, as contrasted with our position, in which there still remains large untouched resources.

This is not a subject that we can explore further, tempting as it may be. We can only illustrate the contrast by the state of agricultural development, where we note that for some years the production of foodstuffs per capita in the two countries bears out our view. In the Republic it has been falling, in the Dominion rising.

It is easy to dismiss this fact, and to suggest that there are still great areas in the United States untouched by the plough. There are, and there are also in the Gobi Desert and in the middle of England. The important fact is that they seem likely to remain untouched in the present economic status of the country.

If we are right in this estimate of the position, we may dismiss the United States from consideration as a possible competitor in the international wheat trade

by saying that it will for some years to come have an export surplus, but that it will rapidly dwindle.

Indeed, there is reason to feel that with the economic improvement now under way in those vast areas of the Southern United States, which are far below what we commonly regard as a North American standard of living, the United States may readily absorb its existing small surplus of foodstuffs. We may note at this point that if we make a rough comparison of the per capita food consumption of Canada and the United States, we obtain evidence in support of our statements. For example, the total consumption of the chief cereals—wheat, corn, barley, oats and rye—is in the ratio of 236 per capita of the population of the United States to 370 per capita in Canada. This, admittedly, does not constitute an accurate comparison, since no exact reduction of all cereals to a common level of unit food value is possible, and our figures are by weight of crude cereals only. Nor can we correct it to provide for a possible difference in the proportion of the oat crop used for providing horse power and of wheat used for seed. It is, however, a reasonable index, especially as between two countries of generally the same food habits and social structure, any error being on the conservative side, since per capita consumption of animal products is slightly higher in Canada.

On the whole, therefore, we view the United States as a country more likely to limit its production of foodstuffs for export by increased domestic consumption and specialization in production of those foods now imported, than to compete actively in the markets of Europe. We are aware that there is a general tendency in that country at present to speak as though

this was not the case, and as if American agriculture stood in danger of great over-production. The following figures do not seem to indicate that, and illustrate our contention that the United States should not be regarded as likely to prove an increasingly formidable competitor with Canada in world food markets.

Production in millions of bushels:

	U.S. Average 1909-13	Average 1924-27	Percent. increase	Canada 1909-13	1924-27	Percent. increase
Wheat	790	808	2.3	197	382	48.5
Oats	1,143	1,358	18.8	352	439	24.7
Corn	2,712	2,676	Dec.	17	8.5	Dec.
Potatoes	358	376	4.1	78	82	5.1
Population of livestock, millions:						
Cattle	58,676	60,828	3.8	6,581	9,158	28.1
Hogs	61,685	55,932	Dec.	3,350	4,456	33.0

The human population of Canada increased between 1911 and 1925 by some 28.5 per cent, and that of the United States by about 23 per cent. From these figures we can note that the chief items of agricultural production showed a general increase in Canada exceeding the increase in population, while in the United States population gained on agricultural production. The figures for corn show a decrease in this important United States crop, and while the decrease is even more marked in Canada, corn occupies a very unimportant position there.

Weight must, of course, be given to changing dietary habits, which seem in the direction of less per capita consumption of all foods, but we are of the opinion that any foodstuffs thus added to the surplus can, and under present economic conditions are likely to be, readily absorbed in the domestic market.

That does not change the immediate position, in which we find the export surplus of wheat from the United States directly competing with that of Canada, which causes us to turn now to probable developments in marketing methods in the republic. In the past the marketing of United States wheat has been conducted along the same lines as in Canada. Agrarian discontent, however, has produced various movements to change this, which have been stimulated by the apparent success of the Pool in obtaining better prices for the Canadian product abroad.

We have not the space in which to deal with the co-operative movement in the United States, and can only say that local co-operative movements have generally succeeded to about the same extent as in the Dominion, and not well enough to be satisfactory to the producers. Political agitation, based on this, produced the so-called McNary-Haugen plan, which can be simply described as one by which all the production of an agricultural commodity was to be gathered under one sales administration, which, behind the protective tariff, was to satisfy domestic consumptive demand at a high price, and then to dump the export surplus at any price. It soon became apparent that such a system could not be brought into effect, for political reasons, and after many minor changes had been suggested, the election of 1928 placed in power a Government committed to an entirely different plan, by which a general co-operative sales organization would be provided for each commodity and a large revolving fund of public money be at the disposal of each.

This system is now in process of organization and it is too early to forecast its fate. We feel, however, that it suffers from inherent weakness in having at its

disposal public funds as capital, in which regard it differs vitally from the Canadian Pool. We should anticipate a tendency for these funds to be lost. We feel that foreign importers of wheat will fully appreciate their existence, and the fact that they were provided to still political agitation among producers. We feel, therefore, that an attempt will be made to so manipulate the market that the administrators of these funds will feel called upon to use them as a bonus to the farmer, and that the United States export wheat market will tend to hold to levels below the Canadian as a result. That is, we believe that the foreign importer will attempt to pay the American less than he will the Canadian, since he will feel that the former will incline to look to his Government's supply of funds to make up the difference. This assumes, of course, some dereliction of duty on the part of the administrators of these funds, who are theoretically supposed to see that their employment is along strictly business lines, but who must be men of unusual rigidity of principle if they fail to realize that they are appointed to administer funds frankly provided to soothe political discontent.

In general there seems to be a possibility that this remodelling of American wheat marketing methods may not tend to be a constructive factor in the world market. That can scarcely be regarded as fatal to the present ambition of the Canadian producer to obtain a better ruling price for his grain, but it is certain that his position in that effort will be much bettered should the administration of the public funds not fall into the danger which we suggest.

A more desirable course, from the Canadian viewpoint, would have been the creation of a pool of the

same type as that in Canada, but manifold differences, such as the much wider distribution of wheat production, and the much more important scale of the domestic market for wheat make that impossible at present.

In any event it is not to be anticipated that the United States is likely to be an important factor in weakening the world market for wheat.

We have suggested that the United States may even become an importer of Canadian wheat, to a much larger extent than at present. There does not seem, however, to be much validity in either the belief that it must soon do so or lack supplies, or in the commoner impression that great quantities of Canadian wheat are required to improve the quality of American flour. As we have pointed out elsewhere, the present export of Canadian wheat to the United States for domestic consumption is only about eight and a half million bushels per annum, while the quantity normally milled in that country for use in blending flour for export is about ten million bushels.

Despite our belief that the United States will not add to the exportable surplus of the world at an increased rate, we note that it still produces an annual surplus over domestic use of some 130,000,000 bushels of raw wheat, and of more than enough flour to balance its imports of wheat. It will be some years before expected increase in domestic consumption overtakes this surplus; the protective principle is firmly embedded in American political philosophy; and the reasons which militate against increased production for export are not so effective against increased production for a domestic market, which is, potentially at any rate, more profitable than the export one. Auto-

matically under present tariff conditions the day that the United States ceases to have an export surplus the price of wheat at Chicago will rise at least forty-two cents per bushel—the amount of the present tariff. Indeed, we should expect that when the time comes we shall see difficulty in avoiding temporary surpluses produced to obtain a high domestic price followed by deficits as the less profitable export price discourages producers. That may, however, be avoided by the successful functioning of the new co-operative sales agency, or by a general tendency of world wheat prices in all countries to come to the same level.

Viewed, then, either as a competitor or as a market, the United States does not seem likely to exercise a decisive influence over the fortunes of the Canadian producer. What of Argentina and Australia?

In the case of Australia we find a marked tendency in recent years to expansion of production—

Crop	Acreage	Production	
1922-23	9,763,861	109,454,842	bushels
1923-24	9,540,434	124,993,271	"
1924-25	10,824,966	164,558,734	"
1925-26	10,201,276	114,504,392	"
1926-27	11,687,919	160,761,886	"
1927-28	12,279,088	118,199,775	"

Will that continue? And will it increase so as to make the Island Continent the factor which will defeat the Canadian producer's attempt to obtain better prices?

The agricultural area of Australia is as elastic as that of Canada. It is limited by the ability to produce wheat profitably under conditions of aridity which

commence at a varying distance from the coast and become progressively more intense. Australia is definately committed to a social policy of a high general standard of living, and it is to be expected that it will carry its fight to tame the desert only so far as it does not involve deviation from that standard. It is probable that this is the present position, and that wheat production in Australia has reached its maximum under recently prevailing prices. Should the average price increase, the area which can be profitably cropped will increase, but as actual desert is approached the rate of increase of acreage for every unit increase in price will slow down. There are large areas in the more humid districts now used for pastoral purposes which may be broken for wheat, but this tendency is limited by the social structure of the country, one in which agriculture tends to be in the hands of a class of operators very different in type to the Canadian farmer. Australia is a land of large estates, which are far from intensively cultivated owing to high labour costs. It is highly urban in mentality, and there are small indications of any tendency toward agricultural expansion. The theory that the state owes to the citizen a definite obligation to provide employment at wages on the industrial and not on the agricultural scale, is firmly established. On the whole it cannot be regarded as likely to become an increasing factor in the world wheat market except at price levels which would be satisfactory to the Canadian producer.

It is at present engaged in experimentation with pool sales methods, the apparent tendency being toward a pool on the same model as developed in Western Canada, although some experiments have been made

with a compulsory pool in some of the States. The progress of pool organization has, however, been slow.

A decided factor in this slow progress has been the much more individualistic mentality of the Australian farmer as compared with the Canadian; another has been the lack of elevators, which makes crop storage difficult. A reasonable forecast would be that Australia will be influenced in its future policy very largely by the outcome of the present definite attempt of the Canadian producer to use pool sales methods to obtain a better price. Should that succeed the creation of an Australian pool and the provision of adequate storage facilities might be expected. That is, the present spread in price to the advantage of the Canadian farmer, due to his ability to store his product, has not proved sufficient to change the Australian outlook, but should the spread increase much more, a more progressive attitude would be taken. At present Australia is a decided factor in keeping world prices low, and any change in her marketing methods must be advantageous.

When we approach the Argentine Republic we find what can only be described as an economic anachronism—a feudal society based on rented land, in great estates, and cheap labour. It is a country in which the fortunate man who possesses land may have it tilled, harvest his product and dump it on the world market with small regard to prices, and with a fair certainty of great profit. Where the United States and Canada may be said to be countries of high-priced labour and medium-priced land, where Australia can be described as a place of cheap land and no labour, Argentina is a country of comparatively dear land and cheap labour. Social structure and economic condi-

tions, racial traditions, a mild climate and total absence of any signs of industrial development, all combine to make it the ideal source of cheap wheat. The typical Argentine producer is a tenant, who pays a high rent for land where it is well situated and fertile, and makes a meagre profit from his labour. He has poor storage and marketing facilities and is almost entirely unable, as a result, to borrow money against a crop still on hand.

In the circumstances its great increase of production in recent years is to be understood, as well as its willingness to sell wheat "at the market" at any time, and entirely without any serious attempt at bargaining.

The limits of its production can be set; by the facts that its landowners are on the whole indifferent to further increase in abundant revenues; that its area readily accessible to exploitation is limited—it is estimated that of the arable area only 60,000,000 acres out of 438,000,000 are cultivated, but admittedly much of the remainder is in need of irrigation to make its use possible, so that it is probable that this estimate is no more correct as a basis for predicting increase in wheat acreage than the equally truthful statement that the Province of Quebec has only two-fifths of its arable area under occupation; and not least important, by the fact that forces are stirring which seem likely in the near future to alter its social structure.

Despite the lack of industrial development, urban communities are growing—Buenos Aires is a city twice as big as Montreal—and are antagonistic to the present feudal status; immigration is bringing in elements which are not content to be for ever toilers on other men's lands; and a slow but steady progress of education and of knowledge of other types of social

structure is affecting even the native born peasant. Already the question of breaking up the great estates by legislative action has been actively discussed; some sale of land to settlers—farmers on the Canadian scale—has taken place; the many other social forces which act to break up the feudal system are visibly at work; the government has for many years been controlled by the progressive element. Before long Argentina will change.

As it is, the sum total of the factors we name have already put a check on the rate of increase of wheat production; the rate of increase in annual cropping has slowed down until it is no greater than Canada. In addition, among at least the land-owning farmers, there is a distinct desire to improve marketing methods and definite discussion of pool sales have been undertaken, although there is little accomplished as yet.

To sum up, while Argentina still remains the most unpredictable of the factors in the world wheat market, there are signs that the special causes of that position are vanishing. It will be some years before it ceases to be a factor for low prices, but it will cease.

It is, however, a general impression that the great danger of a world surplus of wheat production lies in neither the Argentine Republic nor in Australia, and the alarmists invariably turn their eyes to Russia. That great country, before the Great War and its subsequent internal turmoil, was the chief source of surplus foodstuffs for the deficiency countries of Europe. What, they say, is to happen when the present government, still admittedly struggling with immense tasks of reconstruction, has completed its work, and Russia again pours forth a flood of wheat from the fertile soil of its "black earth" belt?

This is not the place to attempt an investigation of the recent history of Russia, or to engage in speculations on the fate of the attempt to create there a new type of economic society. We must confine our attention to a few salient points which seem directly to concern the production of wheat for export. We may first note that the typical system of Russian agriculture before the revolution was the large feudal estate, worked by tenant farmers in a very low state of education, and of low standards of living. The revolution expelled the great landowners, and turned over their estates to the tenants. In the ensuing disturbances, agriculture lost perhaps fifty per cent. of its productive capacity, and Russia, from this cause and the great crop failure of 1921, actually lacked foodstuffs enough for bare sustenance.

Without attempting to consider the details of Soviet policy since that time, we can safely concede the essential re-establishment of Russian agriculture, the area of land under cultivation having reached by 1928 almost its pre-war extent.

The production of wheat is indeed on the pre-war scale if unofficial estimates are to be accepted.

Yet, Russia has not re-entered the export market to any extent, and we doubt that it ever will. In comparing the economic position of agriculture in the United States and Canada, we showed that the total production by weight of the chief cereals per capita, less exports but plus imports—i.e. the consumption—differed in the two countries. To add Russia to this comparison is to obtain the following ratio—Russia 113, United States 236 and Canada 370; other factors in the diet of the three countries tending to add to the force of this comparison.

This we regard as demonstrating that Russia never produced an export surplus of cereal at any time, but exported wheat out of the necessity of its people—out of the power of the great landlords to force the toiler to produce wheat for export, while he in turn lived on rye and cabbage soup.

Now, however much we may fail to agree on the ethical value or the economic wisdom of the modified communism of the Soviets, we are forced to concede the change that they have made in the liberty of the peasant. It is true that the new Government in its turn attempted taxation of the farmer, with a view to obtaining from him wheat for use in the creation of an export trade, but even admirers of Soviet philosophy admit the failure of the attempt. There is now in process an attempt to create a state-controlled system of large scale wheat ranches in those portions of the country which can be considered unsettled, and of marginal soil and climatic value and also to force farmers throughout the country into communistic groups. There is reason to doubt its ultimate success; there is every reason to believe that even the comparatively small improvement in educational and economic status of the masses, conceded already by critics of the Soviet system, will cause the absorption into domestic consumption of any added production resulting from this attempt as fast as it becomes available.

Indeed, it would appear that even such general poverty and misery of the producer as existed under the old regime would not restore the system of the hungry peasant labouring to provide wheat for the export market, but would cause the downfall of the Government, and that the very success of the admin-

istration in its task of economic improvement of the worker's position will defeat any hope of the creation of export surpluses of foodstuffs.

This is, frankly, speculation, but it appears to reflect the view of the few men who are able to consider the Russian situation without political prejudice and still with sufficient information.

It will be evident, then, that we regard the prospective course of the balance between production and consumption of wheat as favourable to present attempts of Canadian producers to place their industry on a profitable basis. We must not be understood, in avoiding the idea that the world is to be flooded with wheat, as leaning to the view that it faces famine. Ravenstein, in a classical study of this question, published in 1897, stated that the world could feed at least three and a half times as many people as now live in it, and there can be small doubt that social progress has in it the germs of the system by which population increase can be held level with the growth of its supply of foodstuffs.

In the one item of reserves of arable land, we may point out that there are available areas not yet ploughed, much in excess of the present normal wheat acreage of the world. We believe that social conditions will prohibit their sudden exploitation, but equally that the same factors will bring them steadily into use. We shall not pursue this subject further at the moment, as it is dealt with in some detail in the chapter on the future of wheat growing in Western Canada, and the conclusions there found will apply to at least Australia and Argentina as well.

We find, then, a general condition in which the Canadian producer may look forward to as great an effect

of the factors for better prices as of those tending in the other direction.

World production of the countries for which we have exact figures has only increased some 200,000,000 bushels on an average annually since 1913, and world consumption has readily absorbed this. Marketing methods are evidently the vital factor in improving price, and they tend to improve.

How strong the present position of the producer is in the market and how little his strength is appreciated, can be learned very clearly from an examination of the figures of total world shipments. It will be found that movement into European ports is very even, week by week and year by year. They buy there what they need when they need it, and need each week much the same amount as the week before or the week after. When we turn to the figures of weekly exports from producing countries, however, the case is very different. There we find—as it is scarcely necessary to say—great movements at one season of the year, dwindling to almost nothing at another.

In Canada, the St. Lawrence freezes. In the United States the farmers rush to market. In the Argentine and Australia there is lack of elevator capacity. The harvest in all the countries of the world combined produces a fairly even flow of wheat for export month by month, and the buyer needs a fairly even flow of grain the year around. The buyer, however, is represented by a group of men all within a few hours of London by modern transportation—the grain importers of Europe. The sellers are the million scattered farmers of Alberta and the Pampas, of Manitoba, Texas and New South Wales. Their product is always flowing to market in a stream, the crop in Northern

Canada being still not all sold when the Argentine and Australia begin to ship, and the wheat commencing to move from Galveston before the flow from Buenos Aires ceases.

In the circumstances is it not natural that we have what may be described as a potential seller's market actually operated as a buyer's? And is it remarkable that we close this discussion by saying that in the complex picture of world wheat trade the outstanding figure is that of the Canadian producer, who, best equipped with transportation and storage facilities, best-trained in a long process of experiment in every type of organization, has been the first to take a definite stand for better prices for his product? And that as other producers learn the lesson that he has learned we may hope for an end of the time in which wheat has been one staple product of the world's whole commerce in whose price the right of the producer to a return has never been a factor?

Power inevitably brings with it responsibility, and as the Canadian farmer passes from a state of unwilling acquiescence in the sale of his product to one of initiative activity, he will learn this lesson. During the period of slackened shipments which accompanied his attempt to hold the 1929 crop for better prices, it was remarkable to note that criticism of his action came, not only from capitalistic enterprises which stood to lose from lessened business activity, but even from the longshoremen of the Port of Montreal, who experienced some lack of their usual employment. It came above all from British buyers.

Should he persist in his belief that he has a right to share in the negotiations to set a price for his grain, and should he succeed in raising that price, the reper-

cussions in the great consuming markets will be definite.

This is a period of awakening international spirit. No country can remain economically or politically isolated, least of all the country which is the greatest source of surplus production of the world's chief foodstuff. The tentative establishment in the League of Nations of a body which is ready to discuss the economic relations of nations, not as matters of diplomatic negotiation, but as a part of the development of world-society, indicates that.

All that can be said at this moment is that it will no longer be sufficient for the farmer of Western Canada to consider his citizenship as limited to his own country, or even to the British Commonwealth of Nations. He is a citizen of the world, and what was yesterday a matter to be settled at Ottawa may to-morrow go to be discussed at Geneva.

The time has come for a far more active and intelligent interest in world movements, in world politics, and in the intricacies of international relations than was needed in the past.

CHAPTER XIII

WESTERN WHEAT IN BRITAIN

FIFTEEN hundred years ago the island of Britain exported wheat. It was indeed one of the main sources of supply for Rome, its annual exportable surplus running to perhaps twenty million bushels.

The soil and climate of Great Britain are conducive to heavy yields of most agricultural products, and particularly wheat. Farming is carried on in a manner that takes full advantage of the natural opportunities, and as a result the average yield of wheat per acre is around thirty-two bushels, although the area devoted to this crop is not by any means the maximum possible.

At the commencement of the last century, however, Great Britain entered on a period of industrial development until then wholly unprecedented, and even to this day—when consideration is given to the size of the country—unequalled by any other land.

Owing to her position, an island lying off the coast of the continent in which civilization has—in our era at any rate—far outstripped the progress of other great world divisions; owing also to an innate genius in her people for trade; owing to her population's willingness to adventure on the sea, a highway where distance is not reflected in cost of transport as on the land; and owing to her entrance on this type of enterprise long before it had been essayed by any great

nation since the fall of Roman civilization, her progress was immediate and rapid.

A nation engaging in this form of enterprise must seek two things—markets for her products, and a supply of cheap materials. A century ago those awaited the first comer. In Asia an ancient civilization had not learned how to produce cheaply, and English cottons by their very cheapness invaded a continent. In Africa, in Australasia and Oceania great populations were still living in a primitive fashion, and were ready to adopt the clothing and the tools of a more advanced civilization. In America lay the almost ownerless mass of wealth, of land and forest, which two hundred million people scarcely use today.

The resulting development of manufacturing in Britain, and the rapid increase in her population turned the attention of the nation—at that time famous for the development of her farming—to other things, and by the repeal of her protective tariff on wheat in 1846 she definitely announced her decision to abandon agriculture for industry, and to regard her cities as the market places, not for a county or two, but for continents.

As a result and for a whole century Britain has fallen far short of producing her own food, and a flood of the surplus foodstuffs of other lands has yearly poured into her ports, supplying cargoes for her ships, creating an immense and profitable commerce for her ports, and providing her dense population with the necessities of life at a lower cost than in any other land.

In the case of wheat Britain imports—as wheat and as flour—the equivalent of 225,000,000 bushels, from twenty different countries, or 80 per cent. of her total

annual consumption of 281,000,000 bushels. This importation amounts to one-third of the world's total movement of wheat from country to country, and includes about 60 per cent. of the total wheat exported from Canada—although accurate figures cannot be obtained, for reasons given in the previous chapter.

It is not surprising that a country occupying such a dominating position in the world's wheat market should have used it to her own advantage, and it is not too much to say that Great Britain has for many years complacently assumed that the wheat fields of the world are ploughed and sown each year for her, nor equally to say that the wheat growers of the world have been ready to admit that fact.

No bulletin of wheat prices in the world, be it issued in Sydney, in Budapest, in Buenos Aires, Chicago, Winnipeg or Montreal fails to commence its daily statement with the "Liverpool cables". The British quotations are essentially the foundation of the market. What Britain thinks of wheat prices is the chief factor in fixing those prices, and every morning every seller of wheat throughout the world concerns himself first with ascertaining what those thoughts are.

This is not a new business. Russia has long been accustomed to it, as also the wheat areas of Central Europe. As the settlement of America has progressed, one area after another has turned from the production of wheat for export to other enterprises, but always new areas have opened up, and new producers have tried to gauge their operations by Britain's need of wheat. New York State once regarded British prices for wheat as the barometer of farming prosperity; Ontario did before wheat ever grew in the Red River Valley, and the fathers of men still living brought their

wheat from the Richelieu Valley of Quebec to the St. Lawrence to be shipped to England.

Naturally, a commerce of this age and this magnitude has not failed to produce skill and experience, and it is not in the least an overstatement to say that the British buyers of wheat are as skilled in barter, as shrewd in matters of price and quality, as are the traders in any commodity in all the world's commerce.

Moreover, they are buyers only. Chicago and Winnipeg, Montreal and New York, are traders in wheat. They can make a profit out of a rising market, or a falling one. London and Liverpool are not averse to earning a penny per bushel out of a rise in the market, but their fundamental aim is to buy wheat, and to buy it cheaply. It is almost a matter of patriotism. Their country lives because it can buy wheat cheaply. It is the food of the nation, and should it go high, the nation must suffer. Lest anyone should think this to be an exaggeration it may be well to point out that the price of the people's food is a basic question of British politics. It is perhaps no longer true that "the shilling loaf means revolution", but it is absolutely true that the fate of governments hangs on their skill in making sure that the people of Britain are cheaply fed. The cry of "no taxation of food" defeated Chamberlain and Balfour before the War, and the first reaction of the Labour government of 1929 to Lord Beaverbrook's suggestion of Imperial preference as a cure for British trade depression was Mr. Snowden's emphatic assertion that it must not affect the price of the people's food.

In this, the greatest of all markets for wheat, there is but one desirable course for prices to take, and that is downwards.

Peculiarly enough, the producer of wheat in Western Canada has seldom shown any clear appreciation of this fact, of the existence of a determined and systematic effort on the part of his great market to purchase his product as cheaply as possible. It has always been discussed and dismissed as though it were a thing as inevitable as drought or rainfall—one of the natural uncertainties to which the farmer is always a slave. Cost of production, cost of land, cost of labour, cost of marketing, even cost of transportation, have been the things to which he has given thought and effort. "The price of wheat is a world price, fixed at Liverpool" has always been the answer to those who have suggested that perhaps something might be done to obtain a better price per bushel for his crop.

A fundamental reason for this idea has been the farmer's entire familiarity with the process of fixing the price of wheat at Winnipeg, and a not unreasonable although wholly incorrect idea that the same method obtains at Liverpool. At Winnipeg wheat is dealt in on the Grain Exchange in accordance with not only the rules of that body, but also with the law of the land. Wheat may only be bought or sold by grade —the grade established by an inspector so authorized by the government of the country. Each time that a transaction occurs and is posted, it defines the price of wheat at that moment throughout Western Canada. One dollar and forty cents per bushel paid on the Winnipeg Exchange is a definite announcement to every producer or owner of wheat in Western Canada of the exact value of his holdings at that moment. It means that a bushel of wheat of the same grade is worth to the man who owns it in an elevator on the Prairies one dollar and forty cents, less the cost of

transporting it—as fixed by law—to Fort William and less certain charges established either by law or by the rules of the Exchange and payable to broker or other handler. This is so clearly established in the mind of the Western producer that no one, for example, would hesitate—if satisfied that the market was fairly stable at the moment—to accept a given number of bushels of wheat in any stated position in liquidation of an account.

It is unquestionable to anyone who has followed the economic discussion of the problems of wheat production and marketing, which is an endless subject in Western Canada, that the vast majority of Western wheat producers, and indeed of all interested directly or indirectly in wheat, are of the opinion that something very much like this system follows the wheat throughout its progress to the final buyer—the British miller who turns it into flour.

That is, the impression exists that when Liverpool cables a certain price as being the price of that day for a certain grade of wheat that that figure has been arrived at by the same mechanism, and means the same thing—that every owner of wheat on the Western plains can by deducting from it the cost of transport, and the customary charges, calculate for himself exactly what his holdings are worth at that moment; and the impression is not in accordance with the facts.

It is true that there exists an exchange at Liverpool, from which come the cabled "Liverpool prices", and that in London a special exchange has been organized to deal in Canadian wheat, but neither of these occupies the position with reference to British imports of wheat that Winnipeg does to Canadian exports. They exist primarily to deal in futures, and in any case much

Canadian wheat is sold without necessarily passing through them. That is, the "Liverpool price" of the day and grade does not in the least offer the same definite information to the producer that is given by the Winnipeg price.

Then, too, the King's writ in the right of his Dominion of Canada does not run on the high seas. Transportation, that is, may be a fixed cost between any Western Prairie elevator and the seaport where the wheat is loaded for shipment to Britain, although even here we must remember that it is not so for all the wheat which moves by water East of the Head of the Lakes. The orders of the Board of Railway Commissioners for Canada do not, however, affect by one iota the cost of transport from the United States or Canada seaboard to Liverpool, to London or to Hull.

The price of transporting a parcel of wheat from one seaport to the other is a variable affair. It is a matter of demand and supply of that particular day. Liverpool may be calling for wheat, and few ships may be idle at Montreal or New York—the cost of transport per ton will go up. The export market may be sluggish, and the number of empty ships seeking cargoes from the port of shipment may be large—the cost of transport goes down. It is exactly as if the station agent of the railway at a Prairie town were to be empowered to bargain with the shipper over the rate for each carload that goes forward.

Considering that the variation in cost from day to day due to this factor may readily exceed the greatest possible reduction of freight rates so far suggested on the railways, it is peculiar that those who, whether sincerely or not, have from time to time argued that the way to assist the producer is to furnish cheaper

transport, have so far not interested themselves in the problem of ocean rates—perhaps because of the very obvious fact that they could accomplish nothing there.

It is of course at once plain that this one factor is sufficient to vary greatly the situation as between prices quoted at Winnipeg and those in effect at Liverpool. Obviously, where the farmer can by a simple calculation reduce the day's price at Winnipeg to the price of the grain he holds in his local elevator, to perform the same operation with the Liverpool price would require him to know at what rate per bushel wheat will move from Montreal or New York overseas, and that he cannot even intelligently guess.

That, however, is not the chief difference in the two markets. The vital factor which makes it impossible to compare them is the difference in the methods of defining grades, of bargaining as to the quality of the wheat to be delivered.

It is true that the usual contract for the purchase of Canadian wheat in Britain provides that the grade as fixed by the Canadian Board of Grain Commissioners shall be accepted, but that clause in the agreement is of very different effect in the two markets. At Winnipeg it is self-enforcing, for all wheat entering that market must be so graded, and even if individual differences of opinion between two inspectors may affect the case, on the whole, and for the wheat producers as a whole, the average correctness of grading will produce the same effect as though all grading were mechanically correct. That is, while producer Smith may lose and producer Jones win by differences of inspection standard, the wheat producers of the whole West will neither lose nor win.

There exists, however, no attempt whatever to pro-

vide a uniform legal and enforceable standard of quality for all the wheat entering Britain. For example, while Canada provides a systematic inspection and grading of her wheat, Australia does not, the grade in that case being fixed by agreement between seller and buyer, with provision for arbitration in case of dispute—a provision so often used that it may fairly be said that Australian wheat is graded by a body of unofficial private graders in Britain.

It is thus possible for the British importer of wheat to treat the whole question of quality as an arguable proposition, and while the Canadian seller may be able to save himself from some loss by his possession of a Canadian Government certificate of grade, the fact that his wheat must compete on the British market with the product of countries which do not provide this service to their farmers, plus the lack of a central system of standardizing all grades, means that the advantage is, where wheat is sold at Liverpool, by no means the protection to the seller—or to the buyer either—that it is at Winnipeg. In the end the situation becomes at Liverpool very largely a case of a sample market, in which case the comparison between the shrewdness and advantageous position of seller and buyer takes the place of the efficiency of inspection and grading as a factor in fixing the price.

The difference between trading in wheat as practised at Winnipeg and Liverpool is therefore plain, and it is regrettable that failure to appreciate the difference has been at the root of much waste of energy and time on the part of the Western producer, who has endeavoured to find his remedy for profitless production of wheat in a dozen different places, rather than in the British market, where his ultimate receipts are determined.

Two criticisms of these statements will be made; one that they are opinions lacking confirmation; the other, that in any case they do not change the fundamental fact that Liverpool does fix the world price for wheat, and that nothing can be done about it.

The answer to the first is very simple. A very casual search will show that no definite relation whatever exists between the prices of the wheat of various countries at Liverpool. That is, if in the absence of an international standard of grading we use certain generally accepted "spreads" as representing the difference of milling value of various wheats, say to compare No. 3 Northern with No. 2 Rosafe, we find that from time to time the relation in price between the two products differs materially, sometimes one and sometimes the other bringing the better price. These two particular wheats are of much the same type and fill much the same place in milling practice. Were Liverpool a market such as Winnipeg is, the spread between them would be uniform or only slow in appreciably changing. As things are, the spread may change with great rapidity, and far more than can be explained in seaborne transport costs. That is definite and logical evidence of the difference in the function of the two markets.

It is, moreover, a hint as to the possibility of accomplishing the supposedly impossible, and substituting a definite attempt to obtain a better price for Canadian wheat in Britain, for the superstitious reverence for the "world price at Liverpool" which has been such a factor in the economic discussion of wheat.

The facts of the case are simply that the British markets are not exchange markets in the sense that Chicago and Winnipeg are. They are ultimate mar-

kets, where men are not buying wheat as a commerce, or as a speculation, but because they need wheat, to grind into flour, and to make the bread of a nation. Grades to them are not the difference between the blue and red chips of a poker table as they are at Winnipeg, but actual differences in the price which they can afford to pay for wheat.

Winnipeg has been at one time or another charged by the farmer with being too bearish—too ready to take too low a price for his wheat; or too bullish—too unwilling to market his wheat for him. Liverpool is never bullish, but always bearish. It seeks to buy wheat, and to buy it cheaply, every day.

It succeeds. India sells wheat to Britain, literally from famine. In that great country millions live on the verge of death by starvation, but in certain years actually export wheat. That is always distress wheat and Britain always buys it as such, much below the price which might be arrived at by comparing its cost of transportation and its milling value with the wheat of Western Canada, where men have not in even the hardest years reached the point where they must deny themselves bread. The Hungarian farmer says plainly that he never gets the price in Britain to which the milling value of his wheat should entitle him. Liverpool has weighed him and gauged him as more easily contented than the people of Western Canada or the United States. Therefore he gets less.

This is a marvellous spectacle of business skill. No bets are missed. Last spring the United States Government, panicky over agricultural discontent and a very temporary world surplus of wheat, attempted to help by obtaining a reduction in rail freights on export wheat. Liverpool not only managed to seize the

reduction, but used the opportunity to push both Winnipeg and Chicago lower on this admission of difficulty in marketing.

It is not our intention to picture the British buyer of wheat as in any way an oppressor of the producer. He is scrupulous in the exactitude of his commercial honesty. No market is a safer one for the seller. He merely applies skill and experience, with all the advantage of being the greatest single customer of the grower. Nor yet is it to be understood that the buyers of Britain are highly organized among themselves. On the contrary competition is nowhere keener than among them. As they are all, however, directed by the same purpose, the effect is the same.

Now in such a market as that bargaining on behalf of the seller must, if it is to be as advantageous as possible, be as skilled and as purposeful as is the buying. In the past that has been far from being the case. To take the case of Western Canada, it must be plain that this was so as long as that producing area was represented in the market by a complex system, commencing with the owner of the country elevator into which the grower discharged his wheat, and ending with an exporting house on the Eastern seaboard. Throughout its length this chain consisted of units organized primarily for the purpose of handling as much wheat as possible, and of obtaining a modest commission on each bushel. It is true that each of these units might welcome a rise in the price of their holdings of wheat, but as professional handlers of wheat rather than dealers in it, they often preferred to forego the chance of such profits for the greater safety against loss provided by hedging. On the whole they were not vitally concerned with the price per bushel.

Back of them stood some two hundred and fifty thousand producers, very vitally interested in the price per bushel, but practically helpless to do anything effective to improve it; and indeed only too ready to assume that an unfavourable price was the result of factors which existed in Canada, of speculation, of too high freight rates, of the profits taken as commissions for the handling of the product, and seldom realizing that in the end none of these factors could affect the return to the grower seriously when compared with the fluctuations which might and occasionally did occur in the Liverpool market.

The incursion of the Pool into this field was perhaps the first real attempt to accomplish anything tangible in the obtaining of a better price from the only source from which it could come, from the ultimate buyer; and it is probably true that this was not the primary object of the Pool, nor yet a chief reason for the enrolment of most of its membership.

The Pool gave its first attention to the elimination of unnecesary transactions, by deciding to offer wheat direct from the grower to the ultimate buyer—the miller—rather than to the large group of firms operating as importers of wheat for resale. Naturally such a course created great opposition on the part of the latter, but was welcomed by the millers as being a step in the direction of enabling them to purchase more cheaply. Before long, however, it became apparent that the Pool was not willing to act merely as a new and convenient channel of selling, but felt that it had a commission from its principals to obtain a fair price for their product. That became quite clear during the period between the reaping of the very unusual crop of 1928 and the time when it became

evident that 1929 would not produce even a normal world crop; and as a result all elements in the British market have been recently severe critics of Pool policy, although their criticisms have not taken the absurd and extreme form of some of those issued by Canadians.

There is, however, every reason to believe that the British buyer, with his full knowledge of world wheat conditions, is too sensible to fail to realize both the wisdom of the action of the Canadian farmer in organising for co-operative sale of his product, and the possibility of his succeeding. In that case the Pool will be accepted as inevitable, and more thought given to means for persuading it to accept a low price than to attacks on it.

At this point it may be well to remark that it is here that there appears most clearly the reason for a change of attitude of private grain-dealing firms in Canada toward the Pool. Despite many assertions of its impossibility, the Pool seems at present to be able to forecast, if not to claim as an actual accomplishment, its success in obtaining a better price for the wheat of Western Canada than would have been paid had it not existed. Perforce the private dealer must follow suit or go out of business, since it is certain that the Western farmer, difficult as is the computation, would not long be willing to accept less from any buyer than he could obtain from the Pool. In the circumstances it would seem logical for the private dealer to move in the direction of copying Pool sales policies as quickly as possible; to cease to be a mere commission merchant handling wheat, and to become an agent selling for his principals as well as possible. It is certain that in such a case much greater success would be

attained by strong groups than by weak individual firms, and there is reason to expect immediate steps to consolidate the operations of the many wheat-dealing firms into larger units—a businesslike idea, which may be criticised as being dangerous by extremists, but which, as long as the Pool continues to exist and to function, should be regarded as only beneficial to all the interests concerned. Should this occur, Canada may claim to be the first wheat exporting country to have substituted a complete system of intelligent marketing for the older and less efficient method which left the buyer unduly powerful in the bargain.

In the event of success in this enterprise it is to be expected that other countries will follow. Australia and the Argentine, for example, while for many reasons discussed elsewhere willing to accept a lower price than would satisfy the Canadian grower, are not indifferent to any prospect of bettering their market, and the United States Government is actually engaged in investigating the reasons for the higher price ruling at Winnipeg than at Chicago. All these countries are already discussing pools, and in the United States and Australia at least a part of the crop is now pooled. Should this become general there would exist a very different situation from any known in the past. Pools representing three or four countries could, in the persons of their London agents, meet any morning and come within reasonable distance of dictating the price of wheat in Britain, the price of flour, and the price of the people's staple food. Such conferences would be only sensible business and would inevitably occur.

The reply of Britain to such a condition is almost certain. No government could accept such a risk

as that would involve, and least of all the Government of Great Britain, where even supposedly reactionary administrations accept the responsibility for the public welfare to a degree amazing to Canadians. The reply would in all probability take the form of some agency for the central purchasing of the country's needs of wheat, in addition to minor measures less effective in their scope looking to an increase in domestic production, which can very easily be arranged.

The creation of such a body has already been suggested, though it is not yet a subject of practical politics or of general interest. It is unlikely to occur until its need is very apparent, since wheat, important as it may be to the life of the nation, is not a subject of much interest to the man in the street as compared with the multitudinous other problems that attract attention in Britain. It must, however, be regarded as a highly probable result of the situation which now appears to be developing.

It is of course not to be assumed that Britain has suddenly passed from a position of dominance in the fixing of wheat prices to one of complete dependence on the will of the producers in other countries. Man most assuredly does not live by bread alone. It is true, as pointed out elsewhere, that the wheat production of the world is not keeping pace with increase in consumption, and that Britain would therefore be in apparently a dangerous position should the producing countries succeed in organizing their sales as suggested. Substitutes can be obtained however. Potato production, for example, is not carried, by any means, to its extreme point in Britain. The population of Britain, which has shown a most extraordinary increase in the past century, is not necessarily fixed at

its present high level; indeed the birth rate appears to be declining. It has been suggested that the present diet of the British people is unnecessarily heavy, and would specially benefit from a reduction of the proportion of wheat used. Increased prices for wheat also may mean increased production, and as we have said in other places no one has yet ventured to place any limit to the amount of the world crop that could be produced given a situation in which the wheat producer obtains more than his share of reward for his labour.

The fact is that there exists some point beyond which the price of wheat could not go without making it certain that Britain either must do without wheat or find some means of obtaining it more cheaply. No means exists of determining that point, especially as it must be defined in terms of money which changes very greatly in purchasing power. It was, for example, possible for Britain, during the period when the fiat money of war times was passing current, to pay fifty per cent. more for wheat than the post-war normal price.

On the whole we might safely assume that Britain can, and if necessary, will pay a price per bushel somewhere in the neighbourhood of what the farmers of Western Canada would as a whole think a reasonable return for their investment and labour; that is, that wheat has been artificially low in Britain for many years, and is, under better selling methods, likely to level up to a price which can be said to be fair.

In any case it may be safely said that no effort of the wheat producers of Western Canada to better their position has been or can be more effective than the present attempt of their selling organization to per-

suade the British market to permit some increase of the ruling price per bushel. That this effort has been unnecessarily postponed in favour of many attempts to do other, and often useless things has been most unfortunate.

In the case of wheat, as with any other commodity, while cost of production should be cut and every possible leak watched, in the end the most important factors of success will be the existence of a profitable market and the skill with which the commodity is sold.

It is not unreasonable to expect a time when Western Canada will not export wheat, nor Britain import. That would involve changes of great magnitude in the organization of society in both countries, and must be placed in the list of things too far off and too great to be properly seen at present. For the moment Britain is still the great market for wheat, and Western Canada can do nothing wiser than to attempt to meet her needs in quantity and in quality—at a fair price.

CHAPTER XIV

MILLING WHEAT IN CANADA

THE PREPARATION of the grain of the wheat plant for use as human food is one of the main human efforts to call mechanical power to its assistance.

From the mortar and pestle, through the hand—and later the horsepower—quern, through the application of windpower, then of waterpower by anchoring a raft with paddles revolved by the current in a swift stream, as is still done in China, and copied on the Danube, and the other road of impounding a stream behind a dam; through the application of steam, and of modern developments of waterpower directly or through the intermediary of electricity, it has steadily progressed to its present high pitch of perfection, of mechanical and economic adaptation.

It came to Canada in the historic form which it long preserved in Europe—the mill of the seigneur, to which must perforce come all the grain of the estate, to be ground and divided between tenant and lord in customary proportions. It came again with the Loyalists, whose first industrial effort was to plant a grist-mill at some suitable spot on the banks of a stream, and often by so doing to determine the location of a village, a town or a city.

It is still practised in this form in Canada, following the historic system of milling grain for the grower's account, and taking payment in part of the product,

a highly modern development of that being in recent times the production of a small plant of most modern and efficient type, which farmers may use jointly, or with which one farm can make itself a milling centre for the neighbourhood.

Changes in the economic structure of society tended to make mills larger in size, and to operate them rather as commercial enterprises than as local community services. The miller ceased to be a grinder of other people's grain, but bought it, and ground it for his own account. The industry progressed along these lines in a solid and substantial fashion, using in general the grain of the neighbourhood, and the end—to a large extent—of this phase was a decided blow to sound agricultural practice in many areas, where grain, and particularly wheat, are no longer produced for lack of a convenient local mill, although they should be a profitable part of a general farm routine.

The chief element in producing this alteration was the flood of cheap grain from Western Canada—grain produced as a specialty on land of virgin fertility, costless to the producer; the crop later to be transported with an efficiency and at a low cost both unprecedented in commerce. It is interesting to reflect here that both in Europe and on this continent there are still farmers who resent the competition of the cheap grain from newer lands very keenly; France for example holds closely to the idea of tariff protection against foreign wheat. Many European countries are adopting the same policy; and in England successors of the landowners defeated in the battle over the Repeal of the Corn Laws still demand protection.

This flood of cheap grain of the very highest quality changed both the source of supply of grain for the

mills and their economic position. The local mill, drawing its wheat from a narrow radius, and disposing of flour in a local market, feared little in the way of competition, but the grandiose scale of the new supply of grain, added to the demand for the high quality flour produced from it, and the wider markets resulting, stimulated the creation of a new type of milling industry, one built in great units, and producing in great volume, with all the consequent economies of operation.

The progress in this direction is well illustrated by the great variation in capacity of production shown in Canadian mills. The figures for 1927 compared with those for 1926 follow:

EQUIPMENT AND CAPACITY OF FLOUR MILLS, 1927 AND 1926.

Provinces	1927				1926			
	Mills	Rolls	Stones	Capacity Per 24 Hours	Mills	Rolls	Stones	Capacity Per 24 Hours
	No.	No.	No.	Bbls.	No.	No.	No.	Bbls.
CANADA	431	5,177	319	121,748	442	5,087	330	118,316
Prince Edward Island	12	56	16	473	13	50	20	454
Nova Scotia	13	30	24	345	14	37	22	485
New Brunswick	11	85	3	666	13	90	3	717
Quebec	91	791	196	21,180	92	788	204	21,155
Ontario	188	2,458	52	61,599	199	2,538	57	62,139
Manitoba	30	582	5	12,415	29	568	7	12,270
Saskatchewan	45	509	16	10,946	43	448	10	8,834
Alberta	36	617	2	13,170	35	534	2	11,609
British Columbia	5	49	5	954	4	34	5	653

From this it will be noted that the average production per mill is rated in the Maritime Provinces at 41 barrels per 24 hours; in Quebec and Ontario combined at 297 barrels; and in the Prairie Provinces at 329—showing the tendency to locate large modern mills in areas of high consumptive capacity, or alternatively, close to the source of raw materials. The

largest mill in Canada has a rated capacity per 24 hours of 14,000 barrels.

This division of the industry into two types must be remembered, as it has produced two schools of economic thought in the industry, and often causes apparent contradictions in the way in which its demands for legislative or other public action are framed. We shall return to this subject.

The average consumption of wheat in the milling industry in the eleven years—1917-1927—has been slightly over 81,000,000 bushels—an appreciable portion of the average wheat crop for all Canada of 327,000,000 bushels in the same period. The quantity used has, however, not varied greatly in the limits of that period, the highest consumption being 95,000,000 and the lowest 61,000,000 and the final year of the period showing as high but not appreciably higher volume than the first.

The average production of flour was nearly 18,000,000 barrels, the amount of wheat needed to make one barrel being somewhat under 4.54 bushels.

The average annual cost of wheat for the years 1922-1927 was $1.31 per bushel, and the average sale price of flour $6.40 per barrel.

The wheat used came of course almost wholly from Canada, and much the greater portion from the West. In addition to the flour, there was produced the average annual amount of 3,981,000 tons of bran, shorts and middlings valued for sale at $17,000,000 or $25 per ton, and bringing the annual conversion of wheat into flour and by-products to the point where $115,000,000 of wheat is turned into $180,000,000 of finished product.

The largest mills are listed as follow:

Place	Owner	Capacity bbls. per day
Montreal	Dominion Flour Mills, Limited	7,000
"	The Ogilvie Flour Mills Co., Ltd.	11,000
"	St. Lawrence Flour Mills Co., Ltd.	3,000
Toronto	The Campbell Flour Mills Co., Ltd.	2,200
Midland	Copeland Flour Mills, Ltd.	1,200
Peterborough	The Quaker Oats Co.	3,500
"	Peterborough Cereal Mills, Ltd.	1,200
Goderich	The Western Canada Flour Mills Co. Ltd.	2,500
Port Colborne	Maple Leaf Milling Co., Ltd.	14,000
Keewatin	Lake of the Woods Milling Co., Ltd.	11,500
Fort William	The Ogilvie Flour Mills Co., Ltd.	3,000
Winnipeg	The Ogilvie Flour Mills Co., Ltd.	3,000
Kenora	Maple Leaf Milling Co., Ltd.	3,300
St. Boniface	Western Canada Flour Mills Co., Ltd.	5,000
Portage la Prairie	Lake of the Woods Milling Co., Ltd.	1,500
Saskatoon	The Quaker Oats Co.	1,200
Moose Jaw	Robin Hood Mills, Ltd.	3,800
Medicine Hat	Lake of the Woods Milling Co., Ltd.	1,500
"	Maple Leaf Milling Co., Ltd.	1,500
"	The Ogilvie Flour Mills Co., Ltd.	3,000
Calgary	Spillers Canadian Milling Co., Ltd.	2,000
"	Western Canada Flour Mills Co., Ltd.	1,200
"	Robin Hood Mills, Ltd.	1,650

The product of the industry was disposed of as follows in 1927:

Wheat flour exported	bbl.	9,262,936
Bran, shorts and middlings exported	tons	908
Wheat flour available for consumption in Canada	bbl.	9,524,376
Bran, shorts and middlings available for consumption in Canada	tons	680,531

The chief destinations of exports of flour were as follows:

Germany	1,544,003	bbl.
Greece	496,386	"
China	427,357	"
Brazil	309,928	"

British West Indies	740,030	"
British Guiana	163,314	"
Irish Free State	290,407	"
Hong Kong	104,354	"
British South Africa	64,671	"
Netherlands	82,607	"
Switzerland	66,616	"
Japan	95,551	"
Italy	49,951	"

Imports of wheat flour were about $500,000.

The milling industry has shown slight growth in recent years, which is a matter of some concern to those who wish to see Canada improve her economic position. In the first place, the conversion of wheat into flour and other products increases its value, to the extent of over 50 per cent., a matter of importance if the increase could be extended to the whole crop of perhaps 400,000,000 bushels. Then, the industry adds greatly to the industrial prosperity of the country, as it consumes many other grains besides wheat, much fuel, and many other supplies, besides providing employment for large numbers of men.

From the standpoint of the producer its greatest value is that its growth would tend to increase the amount of stock feed available, which is especially important as an encouragement to better farming. For reasons which we have already given, that benefit must be limited at present in the case of the Western farmer, but is of importance to those large areas of Eastern Canada where grain is grown merely as a nurse crop to grasses and clover, and is not a factor in stockfeeding, almost entire dependence being placed on the movement of bran and other mill feeds from the West, either as wheat or in their finished form.

It is undoubtedly true that were the whole crop converted into flour in Canada, the resulting by-products would be an over-supply for Canadian needs, but it is pointed out that foreign buyers at present obtain their feeds largely from the milling of Canadian wheat, and would need bran, etc., to the same extent as at present. Meanwhile, stock feeders in Canada would expect to benefit from lower prices as a result of the increased supply.

Some have gone so far as to suggest the placing of an embargo on the export of unmilled wheat, but this is evidently the result of a misunderstanding of the position. The world does need the entire crop of Western Canada, but does not necessarily automatically purchase it. The need of an article does not bring with it the ability to buy it. Britain may be able to purchase Canadian wheat in the present volume and be unable to buy the equivalent amount of flour and mill offal. A ton of wheat normally costs $6.70 to move from Fort William to Liverpool, while after its conversion into flour, etc. it would cost some $8.40.

The argument that the freight rates on flour and bran might be reduced to compare with those on wheat neglects the important difference in the cost of moving the two products—one a highly fluid commodity, and not readily perishable, and the other a very perishable article which must be moved in small packages.

It would be more reasonable to suggest the addition of the five cents per bushel on wheat export rates required to bring them up to the flour rate, but there is slight likelihood of that suggestion being made.

In addition, flour milling is a highly developed industry in many European countries, quite able as a

rule to compete in cost with the Canadian mills. It is also an important economic factor in their life, and its destruction would tell in the direction of limiting their purchasing power.

The same considerations apply to our most important Pacific customer—Japan.

The Oriental market for flour is an important factor in recent developments in the milling industry. It offers obviously an unlimited outlet for wheat, since wheat is not only a desirable substitute for rice in popular taste, but since the total food production of the crowded countries of Asia is below reasonable subsistence standards. It is common to hear the calculations to which we have referred in another place, showing how few ounces of flour per day each Chinaman must add to his diet to consume the entire Canadian wheat crop, and there is not the slightest doubt that the addition is needed. To pay for it is, however, a different matter, and there is not, as we have said, much hope at present of an active market except where our Occidental economic system deeply affects the life of the Orient.

Even where flour from Canadian wheat has become a staple article of diet, observers place the limit to its consumption at the point when No. 1 Hard wheat at Fort William is quoted at $1.25 per bushel, and then insist that only the lower grades—as No. 5 and No. 6—can compete.

It has recently been suggested that the Pool may enter the milling field, and there can be no question that the opportunity for expansion there would be greater for them than anyone else. Should their efforts to establish a better general level of foreign prices for Canadian wheat succeed, there would be

a stimulus to the substitution of flour for wheat at various stages of market fluctuations, which the Pool might well be able to foresee. That is, wheat may be low at a certain date, and move upward enough for flour milled from it at its low point to compete with say British-milled flour at the high point of the wheat market. That sort of operation would be a delicate one, if it were not to end in disaster. Meanwhile, the British miller is the Pool's great customer, and would resent such competition even more acutely than he does the movement for higher prices.

On the whole, it may fairly be said that the Canadian milling industry is accomplishing about as much as can be expected under present conditions, is deserving of every reasonable encouragement, but cannot be suddenly forced into affluence by any ingenious legislative device. Undoubtedly it should have behind it the full public opinion of the country, as no greater possibility of industrial development lies in sight than the creation of an industry which would convert the whole of the great Canadian supply of wheat into its final and highest-priced form before it is sold.

There are certain minor reactions between the milling industry and other economic interests that will bear consideration. Many suggestions have been made for a lowering of freight rates on wheat intended for domestic consumption to the export level. At present these rates differ as follows:

Westbound:

Export rate from Wilkie, Sask., to Vancouver 49 cents per 100 lbs.

Domestic rate from Wilkie, Sask., to Vancouver 23 cents per 100 lbs.

Eastbound:

No difference to Fort William.

Export rate from Georgian Bay ports to Montreal 14.34 cents per 100 lbs.

Domestic rate from Georgian Bay ports to Montreal 19.5 cents per 100 lbs.

It is to be noted that this rate structure acknowledges the point we have elsewhere made that wheat leaving the Head of the Lakes by water has been exported, and that consequently it is impossible to distinguish between export and domestic rates until the grain re-enters Canada at the Georgian Bay ports, and is again subject to Canadian regulation of commerce.

A miller might allege that he should have the same rate on wheat to be milled for domestic use as he now gets on wheat for export milling. When this demand is investigated it is at once discovered that not all millers are behind it, and we come back to the point where we distinguished between those millers who represent a survival of the older industry, based originally on local production of grain, and later converted to use Western grain, and the mills established primarily to use Western wheat.

Naturally a miller located in Eastern Canada stands to gain by the lowering of freight rates on his material. Most of the modern mills, however, have their plants all or in part on the Prairies, and their interest is not the same. They must pay domestic rates on the flour they ship East, and have small hope of obtaining any serious reduction there.

They can certainly obtain no more of the domestic market than they now have by a lowering in rates, since they have it all. Their natural direction of

growth is in the export trade. Lowering of domestic freight rates cannot assist that, and in special cases might injure it. We have already mentioned the growing export trade in flour to the Orient, and have said that while it must *not* be exaggerated, it is a promising outlet—the direction of greatest recent development in the milling industry. It can only absorb flour made from the lower grades, and one of its difficulties is the colour of the flour. The competition to which it is exposed is twofold; Japan and other Oriental countries wish to copy the European system of buying Canadian wheat, blending it as they may see fit, and reaping the profits of milling and of the resultant stock feeds; in addition, the mills of the United States Pacific coast are competing, but are limited by the lack of low grade cheap wheat corresponding to our Nos. 5 and 6.

The wheat of the Pacific coast is however very white, and if a supply of lower grade Canadian wheat could be obtained a flour might be milled from a combination of the two which would be the optimum in colour and cost combinations. At present the United States mills on the Pacific Coast are debarred from the use of Canadian wheat by the fact that export freight rates to Pacific ports do not apply to wheat except when shipped from Canadian ports, and not destined to the United States.

There is a small, prosperous and well-organized dairy industry in the Fraser Valley of British Columbia, dependent chiefly on the whole milk and fluid cream market of the industrial centres of the province, and consuming some quantity of stock feeds. It has been suggested to the dairymen that they might benefit from the lowering of freight rates on grain for

domestic consumption. It is not within the range of this survey to discuss their claim, but it is of interest to see its reaction on the milling industry.

Millers engaged in the production of flour for export argue with complete logic that as the cost of moving grain from Vancouver to Seattle is to be measured in cents per ton, and is almost negligible, the lowering of domestic freight rates on grain to the export level would practically abolish the present preference of Canadian Pacific ports and make export rates apply equally to Seattle, with the result that the special advantage of Canadian mills in the Oriental markets would be lost.

Mills engaged in a purely local trade might be expected to take the contrary position, as they do not fear competition in their own market and are not seeking export outlets.

The port of Vancouver has made great growth recently in the handling of wheat, and from this standpoint alone might benefit by the creation of a large movement of wheat to Seattle, but this is a narrow view, as any increase there would be lost by a corresponding drop in the exports of Prairie-milled flour, and the growth of a port's commerce is largely dependent on the class of the commodities it handles; that is, high value goods contribute more to port business than low-grade bulky commodities. The whole question in British Columbia is, however, so complicated by local issues that it would be unprofitable to explore it.

The interest of the Prairie producer in the matter is obviously in the maintenance of the present system, which tends to build up industrial communities in his neighbourhood and to add to the provision of stock

feed, which is not at present excessive. Further, the export of flour to the Orient promises to provide a very desirable market for his low grade wheats. Also, since domestic mills pay for wheat on the export basis, no lowering of domestic grain rates can raise the producer's price.

The case is interesting as reflecting the division of interest in the milling industry to which we have referred.

Much confusion has also existed as to the effect of the domestic milling industry on the quality of the wheat exported, the allegation being made that Canadian millers skim the cream of the crop for their own use, and thus lower the quality of the export surplus. It is certain that the Canadian market demands the highest quality of flour. On the other hand, it is the best market for any farm product, and its development indicates a movement in the much to be desired direction of a state when Canada will be less dependent on foreign markets. It is in a position where it will inevitably be able to have first choice of any product, and nothing but absurd attempts to change popular taste by law has ever been suggested to alter the situation. In any case the Canadian milling industry especially aids the producer by the payment of premiums for special quality, which in this case undoubtedly can go to the producer.

The most accessible export markets for flour in the present state of affairs seem likely to consume an increasing quantity of low grade wheats, however, and as fast as that develops it tends to lower the average grade of wheat required for milling—possibly to a point where domestic milling industries might as a whole tend to improve the grade of export surpluses.

On the whole the Canadian milling industry seems to be a valuable asset to the producer, and one capable of sound economic development. It should be encouraged, and if that is impossible, those elements in it which are the most progressive and the best situated to expand it—the mills who are seeking export outlets—should not be hampered in their efforts. In general their attitude is one, not of complete satisfaction with present conditions, but of willingness to accept them and of desire to see no useless experiments made which might make them worse.

It is to be hoped that the industry as it expands will tend to be located on the Prairies. The more industrialized East is apt to resent this, but should logically be in favour of it. If industrialization is to the advantage of the country, its application to the West should be encouraged, and particularly when the raw material of the industry is so typically a Western product. In addition, the industry must seek expansion by the export outlet, since it already wholly controls the domestic market. It should in fact expand in the direction of large, modern and highly equipped mills, in the growing industrial centres of the West, and recent developments in that regard are promising.

It will be a long time before Canada mills all her wheat into flour but every step in that direction is a gain.

We have in this chapter omitted 1928 statistics. In that year a sharp increase in output of Canadian mills is to be noted, but it still remains to be seen if the increase is permanent, or due only to the large cheap crop of that year.

CHAPTER XV

TRANSPORTATION AND THE WHEAT GROWER

THE wheat country of Western Canada occupies a position which may fairly be described as a challenge to man's ingenuity, when it is remembered that wheat is a bulky commodity, of low value in proportion to its weight. Here is an inland empire, a thousand miles wide, and four hundred miles in average depth from North to South. Its product must for the most part be transported overseas. On the South it is separated from the ocean by a great country whose grain competes with Canadian wheat in the world's markets—a country so much richer and more populous that absorption by it has always dominated Canadian political thought. To have permitted Western Canada to be opened to settlement, as once seemed likely, by the throwing out of Northern spurs from the transportation system of the great republic, would have been to permit the agriculture of the Prairie empire to become merely a mine of raw materials on which to build a foreign civilization.

On the North lies the Arctic Ocean. On the East the wheat country lies at its extreme point some four hundred miles from the head of the Great Lakes, which is again a thousand miles from the head of navigation on the St. Lawrence, and another five hundred miles from tidewater open to navigation at all seasons. On the West lies the barrier of the mountains, six hundred miles wide.

Inevitably the first attack was from the East—because there lay not only the known markets for the product of this new land, but also the only commercial and financial centres of Canada. For reasons of national polity as well as to open the new country to settlement, it was necessary to provide transportation from the Atlantic to the Pacific, by a continuous line which might be kept open all the year—in short, by a railway.

It mattered little at that distant time whether the railway would pay or not, or what its cost might be. It must be built. The chequered history of the line thus thrown across Canada, later to develop into the Canadian Pacific Railway, is the subject of a whole library, and it is not our intention to repeat it here. It should be enough to say that its construction was commenced in 1874; that after a period of governmental effort, it became a privately-owned corporation; that it was completed to Winnipeg and Vancouver in 1885; and that it has since grown steadily until its present mileage in the three Western Provinces is in excess of 8,000, and continues to increase.

It is to be expected that this great corporation, which was for many years the sole means of both internal and external communication in a great country, should from time to time have been sharply criticized for its policies. On the other hand, it is but fair to say that the Canadian Pacific Railway has at all times commanded the respect of all Canadians for the competence of its administration, for its far-seeing and progressive policy of development, and for its successful part in the opening of a long succession of new areas to occupation. Its founders are listed among the makers of Canada, and its senior officials have always

been regarded in this country as automatically among its great men, and have seldom failed to fill the role to which their position has entitled them.

There came a time when the success of this great enterprise was admitted—and attracted competition. The attempt was made by two men who commenced their tremendous task alone and unprovided with any assets except courage and vision. Commenced in 1896, the Canadian Northern Railway had in 1918 succeeded in constructing in the Western Provinces alone 5,668 miles of line. It was their policy for a long time to build lines intended to capture the trade of districts in which the older company was not yet established, and to turn over this trade to the Canadian Pacific for movement East. Had this policy been strictly followed, it is possible that the system would have maintained its independent existence, but after a time the company undertook the construction of a transcontinental system parallel in both location and type to that of the older road. How far this grandiose undertaking was successful, how far its failure may be attributed to the malign fortune which dated its completion to coincide with the opening of hostilities in the greatest war in history—these are controversial questions of no importance here. What concerns us is that during that war it became necessary to hand over the company to the national Government.

These two systems were alike in that they both planned to provide for Western Canada a gridiron of lines, cross-connected at many points, but all ultimately converging at Winnipeg, from which point there was a connection to the Head of the Lakes, and then East to Montreal, and further East to the Atlantic seaboard. In addition each line provided an outlet to Vancouver.

That is, these systems were constructed to carry the grain of the West to the Head of the Lakes, where the bulk of it would be moved East by water to ports either in the United States or Canada at the Eastern end of the Great Lakes, and then by water or rail to Montreal or United States Atlantic ports; the lines of rail around the Northern shore of the Lakes being regarded as necessary connections, and capable of use for the winter movement of grain when that portage should be needed.

The outlet to the Pacific Ocean was in both cases merely to complete the general scheme of a transcontinental system, and to serve the commerce of British Columbia, and although there was always in view a possible movement of grain in that direction, it could not be considered as a part of the plan. In both cases the construction of the Panama Canal, and the opening of an Oriental market for Canadian wheat made this western route of importance later.

Next in time came the Grand Trunk-National Transcontinental system. The Grand Trunk Railway was originally built, as was the Canadian route of the Michigan Central Railroad, to provide a route through Canadian territory from the American West—at Detroit and Chicago—to the American Atlantic seaboard. It was an English company, and did not prove—for reasons of no importance here—a paying enterprise.

The opening of the West, and the spectacle of success presented by the Canadian Pacific Railway inclined the administration of the Grand Trunk Railway to consider a possible remodelling of the company's enterprise on a larger and more logically Canadian scale. The Government of Canada was at the same time deeply interested in the more rapid opening of the West.

As a result, a joint enterprise was undertaken—the details of the agreement being outside the scope of this survey—by which a railway was to be built across Canada somewhat to the North of existing lines. It crossed the continent from Prince Rupert to Moncton, passing through Edmonton, Saskatoon, Winnipeg and Quebec. It is important at this point to note that it was not intended to parallel the existing lines, but to create new trade routes, and to provide for outlets by Prince Rupert and Quebec with an alternative winter outlet to the Atlantic seaboard as in the case of the other systems.

The financial position of the Grand Trunk Railway, and the coming of the Great War forced the national Government to take over the new system by a series of steps between 1915 and 1922 and finally, to take over the old Grand Trunk Railway as well.

In the end, a Government-owned system was created, known as the Canadian National Railways, to include the former Canadian Northern Railway, the Grand Trunk Railway, the Grand Trunk Pacific Railway, and the National Transcontinental Railway. In addition the old Intercolonial Railway in Eastern Canada and other Government-owned railways were added to the new system.

Naturally such an addition to the functions of the national Government provoked much controversy into which we shall not go. Fortunately, the Government committed the charge of the new system to a highly competent railway executive, who has succeeded in avoiding the danger of political interference, and who, with ample backing in the matter of expenditures for rehabilitation and extensions, has brought the system to a point where it may be said to compete with the

Canadian Pacific Railway almost throughout Canada, and where it is regarded as on its way to becoming a national asset.

Thus Western Canada is at present served by two of the greatest transportation enterprises of the world. Despite the difference in type of ownership, they are operated on parallel lines of policy, and are usually to be found regarding problems of rates, of immigration, of service, in the same light. They compete—but only in service. Beyond that their interests are unquestionably identical.

In addition to the fact that this competition of two systems of substantially the same magnitude and type provides the most satisfactory means of assuring quality of service, this somewhat peculiar situation has other advantages. The Government of Canada, through the Board of Railway Commissioners, undertakes to control railway rates and service, and a fundamental rule of that control is that rates must not be competitive. Were both systems publicly owned, we should have the spectacle of partial state socialism—a condition in which there is an inevitable tendency for this or that section, or this or that economic group in the community to exploit its political power in the obtaining of special concessions of rates or of services. Were both private corporations, we should inevitably find a tendency for extremists to desire that the Government should forget the rights of the investors in the fixing of rates. As matters now stand, while both of these dangers occasionally manifest themselves, the fact that in order to deprive the Canadian Pacific Railway of revenue, an equal amount must usually be taken, through the Canadian National Railways, from the public revenue tends to appeal more and more to

sober citizens; while any effort to bring pressure to bear through political channels in order to obtain special concessions from the Canadian National Railways at the expense of good business practice is necessarily weakened by the ability of the privately-owned corporation to fight without fear of political consequences. It may be an anomalous and illogical situation, but it seems to be satisfactory in its results.

This much general discussion of the transportation situation is necessary. Let us now turn to transportation as it affects the grain-grower.

The wheat of Western Canada goes to three markets, from the transportation standpoint—the domestic market, the Orient, and Europe. In another chapter this distribution is discussed in some detail, and it is unnecessary to repeat statistics here. The important points can be covered by the statements that the great movement—amounting to more than half the wheat which leaves Western Canada—is by rail to the Head of the Lakes, and from there by water to Eastern ports on the Lakes in Canada or the United States; that while the greater portion of that movement has been in turn through the United States to the ocean, in recent years the tendency has been in the other direction—Montreal and the Maritime seaports now handling in normal seasons almost half the exports by the Eastern route; that wheat may and does move primarily to a Canadian Eastern Lake port and ultimately go out by an American seaport, or may move to United States Eastern Lake ports—especially Buffalo—and still be finally exported through Montreal and Quebec; that the next important movement is the combined movement to Vancouver and Prince Rupert, of which roughly two-thirds is intended for Europe, and one-

third for the Orient; and that the other movements for export, i.e., direct by boat from the Head of the Lakes to Europe, direct by rail from the Head of the Lakes to Montreal or other Atlantic ports, or south from Western Canada to Western United States points, may in a word be summed up as negligible.

This does not distinguish between wheat moved East for domestic use and that intended for export—a point to which we shall return—while the distribution of wheat in Western Canada for domestic use may be regarded as not worthy of detailed study.

Now how and where does this movement of wheat affect the grower? First, is he adequately served by railway lines to handle his product? Yes. Western Canada is served in this regard as well as could be expected, and better than any competing grain producing area. The fact is so generally admitted that it needs no figures to support the statement.

Next, is he adequately served with cars when he requires them? There have been times when this has not been the case, but each year has seen improvement. legislative regulation has been applied to ensure fairness to all shippers, and on the whole the situation is one that can be described as never likely to be ideal, but reasonably good—as good that is as can be hoped for and better than in competing grain producing areas —especially when consideration is given to the Canadian farmer's unique position with regard to elevator storage facilities. In addition it is a situation which promises to be bettered by the establishment of the Pool, for obvious reasons.

Lastly, what is the situation with regard to the cost of transportation? How, and to what extent does that affect the wheat grower? Is it excessive? Can it be

lowered? Does the present structure of rates influence the movement of wheat by alternative routes? Is this influence if it exists of importance to the producer?

To take these questions in order, we may point out that the first is by far the most important in the present discussion, since on its answer largely depends the importance of the others. The grower's primary interest is in the marketing of his wheat to the best advantage, and should it appear that freight rates affect his ability to accomplish that, his interest in the subject is obviously justified to a greater extent than if it be the case that they do not exercise any effect on the price received by him for his crop.

It may be well at this point to return to the fact that in discussing the distribution of the Western Canadian wheat crop we deliberately made no attempt to distinguish between Western wheat shipped to the East for export and that intended to be there used for domestic consumption. That is a logical stand to take since we are now discussing transportation only, and in this we find no distinction between the two uses of wheat until it reaches the Head of the Lakes or until it leaves Georgian Bay ports or Port Colborne for final export or domestic sale. It is common to find running through all discussions on wheat transportation costs the idea that the movement of wheat for export from the Prairies to the Atlantic seaboard is a matter of Canadian domestic commerce. That is incorrect, since at the Head of the Lakes wheat actually enters international commerce, as the navigation of the Great Lakes and their tributary waters is free to at least the shipping of both the countries which border on them, and in practice is a privilege open to the ships of all nations.

It is true that much wheat moves entirely through Canada from the Head of the Lakes to Montreal or other Atlantic ports, but it is equally true that the moment that wheat is loaded on shipboard at the Head of the Lakes its route to the sea cannot in practice be considered a question of Canadian domestic transportation (unless we except Western wheat used for domestic purposes in Eastern Canada during its passage from Eastern Lake ports to its market) as it may at a moment's notice be diverted to Buffalo, from which port it may return to Canada to finally enter our export commerce, or be sent South to the Atlantic seaboard of the United States, either as the property of a Canadian or an American exporting concern. It is true that such a diversion is not usual, but that it may occur makes the effect no less real.

Much confusion of thought would be avoided if this point were fully accepted, and wheat which has left the Head of the Lakes were considered to be exported from Canada—to be reimported perhaps later. Certainly this fact will explain why we are of the opinion that there can be no distinction—from the standpoint of transportation economics—between wheat moving East through Canada for export or for the domestic market, until such time as it leaves Eastern Lake ports on its journey.

Now it is an axiom that in a buyer's market the purchaser pays the freight, saves by its reduction, or suffers from its increase. In a seller's market the opposite is the case. A buyer's market is one in which the buyer holds the initiative in bargaining; one, that is, in which a general surplus condition of supply as compared with demand is found to exist. It would seem therefore to be a matter of first importance in

discussing transportation costs as they affect the wheat grower to ascertain if the normal condition of the market in which he disposes of his commodity is a buyer or seller one.

In another chapter we discuss this question as it affects the British market with some care, and find that that market—the dominating one in the case of Western Canadian wheat—might be described as one that has in the past been operated as a buyer's market, although, with skill in marketing, the Canadian producer might be able greatly to limit the purchaser's advantage. It is therefore substantially safe to say that up to the present there has been every reason to believe that the freight cost on Western Canadian wheat has been paid by the British purchaser and not by the Canadian producer, and that savings created by the lessening of that cost have gone to the purchaser.

So much time and effort, however, have been given to presenting the opposite view of the case that we feel bound to examine this statement, axiomatic as it may be, in the light of actual experience.

Since we are now treating wheat bound East as entering international commerce at the Head of the Lakes, and wheat bound West admittedly reaches an international transportation position at the seaboard, we may limit our interest to wheat as it moves between its point of origin and the Head of the Lakes—this being the great movement—and leave the case of Vancouver, which has special features, to be dealt with when we discuss the question of alternative routes.

The normal method by which wheat is sold has been elsewhere discussed, and the point has been stressed that in the British market trading is carried on, not under the rules and practices which apply on such a

market as the Winnipeg Grain Exchange, where a whole machine has been created to make sure that each shipper can at any given moment obtain the same price for the same grade of wheat less its transportation from point of origin to Fort William, but in a spirit which makes it possible for two identical parcels of wheat to be sold at the same moment for greatly varying prices. The British market is not an exchange, it is a market where men are buying wheat to take away and use.

In such a market there is but one spirit behind every offer to buy—how cheaply can we get the wheat? At the lowest price which the producer will accept, plus the cost of getting it to its destination. The standard method of quoting is c.i.f., which means that the buyer offers to purchase in this case f.o.b. Fort William and to attend to the rest of the charges. Therefore the price which the producer will accept is the Fort William price, less the cost of transport from his shipping point.

Take then the case of a farmer living at Wilkie, Sask. From that point the freight rate to Fort William is 13 1-5 cents per bushel. The farmer shipped half his crop on September 30th at $1.35 f.o.b. Fort William, therefore announcing his idea that that price less 13 1-5 cents is sufficient to induce him to sell. On October 1st let us assume that the freight rate from Wilkie to Fort William has been lowered ten cents per bushel. The British buyer knows that, since no body of men keep so fully posted as to every changing element in the grain trade as the men who feed England. Is it conceivable that on October 1st he will not assume that the farmer at Wilkie will now accept ten cents per bushel less? And is it not a fact that the farmer will as long as a buyer's market condition exists?

No better illustration of that has ever been offered than by an incident which occurred during the spring of 1929. A panicky feeling pervaded the United States wheat market, and on every side we were told that the American farmer had a block of wheat on hand that he could never hope to sell except at ridiculously low prices. The American railways under pressure announced that in order to assist the farmer export freight rates would be lowered. At once the Chicago market broke by that amount, which merely meant that the importer in other countries made the saving.

Further, and since the mere need of such a measure was evidence of a distressed position of the holders of wheat, the market not only broke the amount of the reduction, but actually went much lower.

Indeed, if it is true that the producer can benefit by a lowering of the cost of transportation, why does not the Winnipeg price of wheat, which directly governs the price to the farmer, automatically go up when the opening of navigation on the Lakes and the St. Lawrence lowers the freight rate? In winter it costs at least 29.9 cents per bushel to transfer wheat from Fort William to Liverpool, and in summer normally about 20 cents. Wheat actually moves in winter from Fort William to the Atlantic ports by rail, and some goes from Georgian Bay ports by rail to Portland, Me., and St. John, N.B., to be exported. If the added cost of winter transportation is to come out of this grain's price, the fact must be reflected in a lowering of the Winnipeg price at that time, which does not normally occur; indeed the Winnipeg price often rises.

Let us for the moment assume that we have made our point and proceed to the next question. Is the present freight rate excessive? It is not excessive

evidently from the standpoint of the consumer, who has every year since the commencement of the export of wheat from Western Canada taken the entire production at prevailing rates of freight and on a steadily increasing scale. It is certainly not excessive from its effect on the trade. Is it then excessive from the standpoint of social justice; does it represent unreasonable profits for those who charge it?

In the case of the Canadian Pacific Railway we have a corporation whose railway system alone—excluding hotels, steamships and similar assets—represents a value of well over one and a half billion dollars. Its average net operating income in recent years has been somewhat over $42,000,000. It is not an excessive return, although it is often supposed to be excessive, the common statement that it makes profits of ten per cent. being based on the fact that it pays a high dividend rate on a small common stock issue of $335,000,000, or only about one-fifth of the value of its railway system alone.

In the case of the Canadian National Railways the system is operated at a loss to the national revenue, or if this statement be challenged, since the claim is made that the property is actually paying operating profits but is loaded with old and fictitious indebtedness, is admittedly not earning on a property roughly equal in value to that of the competing system as much as does the Canadian Pacific Railway.

Is it excessive as compared with the rates on other commodities? The rate on coal from Bankhead, Alberta, to Winnipeg is 27 cents per 100 lbs. for 903 miles. On a haul of similar length from Morse, Sask., to Fort William the wheat rate is 22 cents per 100 lbs. for 907 miles. It is generally admitted that the move-

ment of wheat from the Western Prairies to Fort William and Vancouver is the cheapest large scale movement known.

It is not excessive as compared with rates in competing wheat-growing areas, as will be seen by examining the following figures of rates per bushel:

From	To	Miles	Rate
Independence, Kas.	Galveston, Tex.	768	21.9 cents
Kisbey, Sask.	Quebec, Que.	1,759	21.8 "
Bucklin, Kas.	Galveston, Tex.	971	28.2 "
Medicine Hat, Alta.	Quebec, Que.	2,153	25.4 "
Devil's Lake, N.D.	Duluth, Minn.	384	11.7 "
Lydiatt, Man.	Fort William, Ont.	389	8.4 "
Billings, Mont.	Duluth, Minn.	893	23.7 "
Morse, Sask.	Fort William, Ont.	892	13.2 "
Kalispell, Mont.	Seattle, Wash.	637	19.2 "
Turner, Alta.	Vancouver, B.C.	648	12 "

While in the Argentine Republic Mr. W. J. Jackman, in his report to the Canadian Pool, shows that the average rail haul of 144 miles costs 11.74 cents (Canadian currency), per bushel.

Can the rate to Fort William be lowered, even if that would be of advantage to the producer? Probably not, since between Fort William and Liverpool the wheat will normally enter international water borne commerce twice, and it is generally known that these rates are not subject to any regulation. Certainly, it is always possible and very probable that attempts would be made by shipping companies to add any lowering of the rail freights to their charges since, as the traffic is now moving at the sum of rail and water rates prevailing, it probably would continue to move at the same total charge. This compensation for a lowering of rail rates by increase in ocean freights certainly appears to have occurred when the reduction of rates on wheat to Vancouver for export was made a few years ago.

Does the present structure of rates influence the movement of wheat by alternative routes? Certainly, but not by any means to the extent generally supposed. Freight rates on land are, as we have said, but a part of the total transportation cost, and the other—the ocean rates—is fixed, not only by what the traffic will bear, but by a complex and keenly competitive group of conditions. Wheat is a low grade commodity from the transportation point of view, and would scarcely support the organization of a special line of steamers without return cargoes. Wheat in short can only move through ports in proportion to the number of vessels entering those ports in general commerce. It is for this reason among others that Vancouver still handles but a portion of the wheat on which the sum of rail freights and normal ocean charges gives its route an advantage over the one East. It is this factor which largely determines the proportion of the Western Canadian crop which will move out by United States seaports on the Atlantic.

Moreover, marketing strategy enters into the picture. A grain company, for example, at Reford, Sask., from which rates to Liverpool are normally equal by Vancouver or Fort William, may wish to move a parcel of wheat which is not yet sold. In the ordinary course of events the decision will be to ship it via Fort William, because should that wheat enter an elevator at Vancouver, it can only, if it is above the grade at which it can be used for the Oriental trade, find a limited number of ships available to move it to Europe. That places the wheat in a poor position for bartering. Shipped to Fort William it is in a position from which it can be diverted to every market—except the Orient—in which Canadian wheat is ever sold, and choose any of a large number of routes.

In addition, it is customary at present for wheat in transit to be protected by "hedging"—as explained elsewhere. Western Canada wheat cannot be hedged unless it is moving via Fort William, as the only really active hedging market is that of the Winnipeg Grain Exchange. If the wheat is destined for Vancouver or Fort Churchill it is impossible to hedge it on the Winnipeg market. Therefore shippers prefer the route via Fort William.

Is the influence of alternative routes of importance to the wheat grower? Probably not to any extent. It would probably be highly advantageous theoretically if all the wheat produced in Western Canada could be collected at one storage point and then offered for sale solely from there. Scattered blocks of wheat in very scattered locations are possibly an advantage to the purchaser.

These various questions have all been discussed in the light of the present situation of the export market, which we have described as one normally operated as a buyer's market. We have in many places suggested that the world market, from the standpoint of the Canadian producer, might be regarded as a potential seller's market and have implied that the coming of Pool methods may cause this change. What then will be the position as to transportation charges? In a seller's market we are told the seller may save by reduction of the cost of transportation. The answer to that is that the possibilities of enhancing the average price of wheat to the producer by such a change are so great that it is improbable that were the producers as a whole convinced of them they would have any interest in possible savings to be made by forcing the two railways to reduce rates unless undue and exploi-

tatory profits were being made by them. There is a difference of opinion as to whether the railways actually profit from present wheat freight rates, except in so far as this great movement provides them with a backlog of business. One former official of the Canadian National Railways is alleged to have stated very definitely that his system actually has lost money in the transportation of wheat. That need not concern us—although we note that they are visibly desirous of increasing the volume of wheat handled—as it is to be presumed that the railways are competent to present their own case. It will, however, be realized by any even casual student of the subject that at best but a small portion of Canadian railway profits can come from the movement of the wheat crop. Were this entirely wiped out by a reduction in rates it is unlikely that the net result—even if all saved to the Canadian producer—would be worth the effort, the disturbance to business, the danger of crippling two very essential public utilities, and the risk of unforeseen effects of an unpleasant kind such as often result from changes in an established and satisfactory economic situation, when those changes are made, as is too often the case, to satisfy a public outcry based on insufficient knowledge.

There remain certain special cases of transportation charges which have been much discussed recently, and for that reason might be mentioned.

One is the recent order of the Board of Railway Commissioners fixing a rate of 18.34 cents per 100 lbs. for the movement of grain for export from Fort William to the city of Quebec, as compared with a rate, from Fort William to Montreal, of 34½ cents per 100 lbs. for all-rail movement.

The application to the Board which produced this order was frankly based on the feeling that the construction of the former National Transcontinental Railway (now a part of the Canadian National Railways) to connect these two points was a national work undertaken for the specific purpose of opening a new route for grain shipments, and that the experiment had never been completely tried owing to the collapse of the whole Grand Trunk Pacific-National Transcontinental scheme.

This order was issued on September 12th, 1927, and from then until the close of navigation in 1929 has produced a very small movement—about three million bushels. It is believed that this movement should be regarded as due to certain special and temporary circumstances, and not as a normal use of the new route. This new route must normally compete with the all-water movement from Fort William to Montreal and Quebec, which is usually carried on at a total charge of about eight or nine cents per 100 lbs. In the circumstances it is scarcely to be expected that its opening by the application of even the low charges named will be at all effective. In fact, the application may fairly be considered as an attempt on the part of the port of Quebec to carry out its long-cherished ambition to share with Montreal in the handling of export grain, and as therefore of not the slightest interest to the producer, who cannot in any way be aided by such a diversion. Meanwhile Quebec is making substantial progress in developing a grain trade by the older water route and without any special rate concession.

Naturally, if it should appear possible for the port of Quebec to obtain a special advantage by what is frankly the establishment of a grain hauling rate

obviously out of proportion to the rest of the rate system of the country, other ports desirous of sharing in this commerce may be expected to ask a similar concession, and it is not a matter of surprise that the ports on the Maritime coast are now pressing for the extension of the same rate plus 1 cent per bushel to grain for export by their routes.

This is, however, an entirely different matter. At present the great bulk of the grain moved east from the Head of the Lakes goes out by all-water shipment, and therefore is moved only during the period from May to December that navigation on the Lakes is possible. The application of the new rate to grain moved to Quebec does not in any way change this situation; all that could possibly occur under it would be some movement to Quebec in place of Montreal and only during the same season, since not only the Lake route, but also its St. Lawrence outlet is closed in winter.

The Maritime ports are, however, open all the year, and the establishment of a movement of grain by all rail from the Head of the Lakes to them would provide a route that might be used at all times. The position of the railways is that this rate is unfair and below cost—an argument which we need not examine, as it has always been the custom of the railways to fight their own battles very efficiently. What concerns us is the possible effect, if any, on the interests of the grain-grower of such a new route.

At present grain marketing is influenced by the fact that grain can normally be shipped more cheaply from most of the Prairie country to Europe by a route which automatically closes at a certain date than by any other. It is necessary, for example, for the British buyer to make sure that his requirements of grain are

filled—from Canada—before that date occurs, as should he delay too long he must later pay the heavier cost of moving what he buys from the Head of the Lakes or Georgian Bay ports to the seaboard by all rail. This has at all times tended to stimulate the movement of grain in the fall. If this situation is altered, and it is made possible to move grain from the West to the sea, and thus to Europe, without incurring a penalty of higher transportation costs for delay this stimulus will be removed.

It is of course difficult to predict exactly what the effect of such a change would be, but it is probable that it would be to the advantage of the buyer. It certainly would have had that effect in the fall of 1929, when the grain crop of Western Canada was being held at prices which the British buyer was unwilling to accept. The situation at that time was a deadlock in bartering, the seller's great advantage being that the passing of time, and the absorption of other available supplies, made the approach of the close of navigation and of higher moving costs a thing with which the buyer must reckon.

On the whole, the suggested experiment in the establishment of a new route must be regarded as possibly to the disadvantage of the producer, and in any case, not certain to assist him. It cannot be considered as a question in which the weight of the producer's influence should be thrown on the side of a change.

This matter of the use of the Maritime ports is one which must be carefully examined. At present there is a natural tendency for grain not moved by the close of navigation on the St. Lawrence, and which must be shipped from storage at Buffalo, to go to New York and other Southern Atlantic seaboard points, owing to the greater ease of finding ships there to

carry it to its markets. In order to give the Maritime ports in Canada every opportunity to compete in this commerce, the rates on wheat for export from Georgian Bay ports to Halifax and St. John have been fixed at the same level as from Buffalo to New York—15.17 cents per 100 lbs. or 9.1 cents per bushel. As shipment in winter is naturally made from the storage point nearest to the winter ports, and as this is at Buffalo in the United States and at the Georgian Bay ports in Canada, this means that no advantage is given, in the matter of freight rates, to grain moving for export through American channels. There is indeed a considerable concession to the wish to move Canadian wheat through Canadian ports, for the distance from Buffalo to New York is only 396 miles, while from Georgian Bay ports to St. John is more than 800 miles, and to Halifax over 1,100 miles.

Indeed under the present rate system, many millions of bushels of American wheat move across the Lakes from Duluth in summer, to be transferred in winter by rail from Georgian Bay ports to Canadian Maritime ports.

In the circumstances it is fair to say that everything possible has been done to provide the Maritime ports with a chance to compete with American ports in winter. To do more would not divert any traffic, and would necessarily involve the risk of unfavourable effect on the marketing of grain in the fall, by removing or lessening the penalty to be paid by the buyer for delay in providing for his requirements until navigation on the Great Lakes and the St. Lawrence has closed.

To attempt, however, by freight rate reductions to induce shipment of grain through Maritime ports

while the St. Lawrence is open to navigation is obviously absurd. The great bulk of the wheat exported via the St. Lawrence route comes down by water all the way from the Head of the Lakes, and even were no charge made for its loading on cars at Montreal or Quebec, or its transfer from there to St. John or Halifax, there would be no inducement to make the transfer.

Grain normally moves by water when water routes are available. From the Head of the Lakes to the Georgian Bay ports it moves only in volume sufficient to provide for domestic use in Ontario and a reserve for winter shipment by rail to Maritime ports and Portland, Me. The rest all goes to Montreal and Quebec by water all the way, or to Buffalo by water, and then to Montreal in the same way, except so far as larger supplies of shipping available at United States ports attract it, in which case it moves there by canal or rail. It will move by those routes as long as water shipment costs less than rail movement, and that is an economic condition which no regulation by public authorities can change.

It must be obvious that were the Canadian railways to believe that they could possibly obtain even modestly profitable movement from the Head of the Lakes, or from Georgian Bay ports, to the seaports, of the grain which now moves by water to St. Lawrence ports they would not wait to be pressed for reductions in rates.

In short, it is doubtful if any changes in freight rates could further assist the Maritime ports to share in the export trade in wheat, and specially doubtful if any such changes might not be to the disadvantage of the seller as compared with the buyer. Certainly there is nothing in this agitation to attract support from the grain-growers of the West.

There is also the constant pressure being exerted to obtain a revision downward of the rates on grain exported through Vancouver. This is a simpler case, best disposed of by pointing out that at present Vancouver enjoys a freight rate advantage—at normal rates of ocean carriage—on all grain grown west of a line running north and south roughly through Reford and Wilkie, Sask. At present only a fraction of this grain is moving through the port of Vancouver, which seems to point to the fact that no change of rates is needed, from the special standpoint of the interests of that port. The producer is in this case wholly uninterested, as the factors which cause grain normally to move East are too effective at present for any change in rates to affect the movement seriously. Vancouver offers a useful and convenient outlet, which may be expected to grow in importance, but there is no advantage to be gained to the producer by special assistance to that route of shipment. A special feature of the rate situation as affecting that port is dealt with in the chapter on "Flour Milling in Canada".

The present situation of the grain-growers of Western Canada in the matter of transportation facilities may be regarded as favourable. There is no reason to believe that their interests suffer in this regard at any point. The purchaser abroad pays for transportation, and chooses the route. The whole system is one which has been built over a long period of years, in accordance with economic laws, and which seems to function well. It does not place the Canadian producer at a disadvantage as compared with the producer of other countries, as it can be shown that even in winter, with the movement of Canadian grain at a complete standstill, the Winnipeg price of wheat has in recent years

been usually at a premium over that of comparable values of wheat at Buenos Aires, for example. A reasonable suggestion would be that it is difficult to make changes in such a complex system without producing entirely unforeseen results. At present a tendency exists to treat the arguments concerning freight rates on grain as a battle between opposing interests—the grain-grower on one hand and the railway companies on the other. That is scarcely a correct view. The question of railway earnings, for example, seems to be one which the grain-grower need not consider. His need is for a rate system which will not in any way interfere with his sale of his product at a fair price. As long as he is satisfied on that point, it would seem that he might well be content. Both of the transportation systems can be regarded as national assets, and one of them is definitely the public property. They were built to serve the country. As long as they accomplish that purpose, the more profitable is their operation, and the better for the country.

A special suggestion is that the public authorities who have to pass judgment on matters of transportation charges might be well advised to adopt the practice of referring applications for changes to a committee of trained economists for report on the effect that might be expected to result, before the public hearings at which conflicting interests are represented by counsel who must naturally marshal arguments of sectional and local rights, of old agreements, and of other matters which should be of minor interest as compared with the main object of establishing and maintaining a system of charges for this vital service which will permit the producer to market his product without loss, and the transportation companies to earn fair returns.

There is every reason to believe that no real or fundamental hostility need exist between the farmer who grows wheat and the teamsters who take it to market.

It would be improper to close this chapter without some reference to two new and important transportation projects—the Hudson Bay Railway, and the projected improvement of the St. Lawrence Waterway. Each of these has received public attention to a degree where many volumes have been devoted to discussing the wisdom of the undertakings. The Hudson Bay Railway is well advanced to completion. The completion of the Waterway improvements must first be the subject of an international agreement with the United States.

The Hudson Bay Railway would seem to be a logical and inevitable development. Western Canada was first commercially entered by that route, and despite the many fears expressed that it will prove useless, the fact that here we have a veritable Mediterranean Sea penetrating to the heart of Canada seems to make it necessary that we should at least attempt to use it as a highway.

Since it was a project necessarily of chief interest to Western Canada, it was customary for its advocates to urge its importance as an alternative and cheaper route for the export of grain. The route, as fast and as far as it develops into a general commercial highway, will attract its share of grain exports. How fast and how far that development will go is not a matter of a few years, but of evolution spread over a long time. There may some day be another Vancouver or another Montreal at Fort Churchill. Neither Vancouver nor Montreal, however, is necessary to the marketing of wheat from Western Canada. Their struggle

to build up their traffic is undoubtedly in their interests and in the interests of Canada as a nation. Churchill will occupy the same place. Exactly, however, as Montreal and Vancouver have attracted grain shipments only in proportion to their general success in becoming important terminals of general trade, so will the growth of Churchill as a general trade route be the factor which determines its position as a port of grain shipment.

It is certain that if either Montreal or Vancouver were to vanish, the grain of Western Canada would continue to move to its markets, any difficulty resulting being merely temporary.

In this spirit we may reasonably view the Hudson Bay route as an interesting national development, to be tried out with every hope of success—since a port so located cannot but be of the greatest general advantage to Western Canada. The effect of its opening and development on the grain trade cannot be regarded, however, as of vital importance. As fast as ships become available—chiefly because they enter the port with inward bound cargoes—so fast will grain go out, any saving in transportation costs at present going to the purchaser. Much was said of the tremendous saving to the producer of wheat which was to result from the opening of the port of Vancouver, but it still remains to be shown that as a result of saving in transportation costs, one cent more has ever been paid for a bushel of wheat shipped by that route than for a bushel shipped by the older road. Indeed, in the absence of all the factors that make Fort William the chief outlet—such as established futures, marketing facilities and many further alternative routes and markets—the price of wheat shipped via Vancouver is usually to be found

slightly below the same wheat at Fort William.

Much has been made of the competition which Churchill will give to Montreal. As a matter of exact statement neither Churchill nor Vancouver can compete with Montreal, but solely with the ports at the Head of the Lakes, since it is at that point that wheat enters international trade. The competition is therefore not between Churchill and Montreal, but between Churchill and the whole North American seaboard. Should the Hudson Bay route ever attract all the wheat grown in Western Canada, Montreal might by that time have so strengthened its position as a terminal of general trade as to be able to replace the whole volume with wheat grown in the United States.

A recent suggestion is that the opening of this route may encourage the holding of wheat in the interior terminal elevators at Moose Jaw and Saskatoon. This possible development is discussed elsewhere.

In general the only regret in connection with the Hudson Bay Railway is that it was not opened many years ago.

The improvement of the St. Lawrence Waterway so that it will constitute a single deep channel from the Head of the Lakes to the sea is a different matter. In degree it is more important than the placing of a new light or an additional buoy on the present route, but not in kind. The statements made by some of its advocates that it will save the Western farmer uncounted millions in freight rates are an excellent example of how regularly wheat and its problems are used to attract the support of the farmer to any and every scheme. The simple fact is that in the United States and Canada alike the violent partisans of the Waterway are to be found all within a short distance of its shores.

The Western grain-grower may, in his capacity of citizen of the country, feel it his duty to take part in the controversy aroused over this scheme, but it assuredly cannot be of serious interest to him as a grain-grower.

It will be given a fair trial as fast as it is ready, as is shown by the provision of the new elevators at Prescott and Kingston, Ont., to enable the new Welland Canal to be used for the movement of the grain-carriers of the Upper Lakes as far East as possible. That is a proper development. To suggest, however, that the completion of the Waterway will revolutionize grain routing and make the normal course to move all grain direct from the Head of the Lakes to foreign ports seems to us to be to neglect entirely the factors which at present control grain routing and grain marketing strategy. It is probably of interest chiefly as a power project.

The farmer has wheat to sell and to sell at a fair price. His interest in transportation and in transportation costs of grain is to make sure that his ability to obtain a fair price is not limited by them, and that his transportation organizations are able to furnish him with competent service. Beyond that, he should be slow to seize on every new suggestion of a new route or an alleged saving, which may actually assist the foreign buyer at the cost of Canadian public and private interests.

CHAPTER XVI

THE GOVERNMENT AND THE WHEAT GROWER

MOST modern countries give special attention to agriculture, both by maintaining a department of the Government to aid the farmer with advice and technical information, and also by supervising the quality of the farmer's product in order to encourage confidence on the part of the purchaser. This type of service is very highly developed in Canada, at least as highly as in any country, while in the case of the Prairie Provinces the great importance of the wheat crop in the economic life of the community makes both the development of this service and its value especially notable.

The Dominion Department of Agriculture was created in 1868 in accordance with the provisions in the British North America Act that the Parliament of Canada might pass laws affecting agriculture, the provincial legislatures to have a similar power as long as their acts should not be repugnant to those of Parliament. At first the Department was given control over miscellaneous functions which had no connection with agriculture, but had not yet found a home in other departments of the new Government. In time these were removed to more suitable places, and the Department permitted to give its undivided attention to the problems of agriculture.

It is organized in Branches of Experimental Farms; Dairy and Cold Storage; Health of Animals; Live Stock; Seed; Entomology; Fruit, and Publications.

Its general object is to furnish a complete technical service to all branches of agriculture, and to supervise the grading of products, although because its activities in this latter line were not well developed when the first difficulties were encountered in grain marketing, the grading of wheat is not in its hands.

One of its main types of service is that rendered by the Experimental Farm Branch, which conducts a series of stations throughout Canada, where experimental work of all kinds is carried on, sometimes as a matter of research, and sometimes to demonstrate approved methods. In the West experimental farms and stations are maintained at Brandon and Morden, Man.; Indian Head, Rosthern, Scott, and Swift Current, Sask.; Lacomb and Lethbridge, Alta. Sub-stations are located at Wainwright, Fort Vermilion and Beaverlodge, Alta., and Fort Smith, Resolution, Providence and Good Hope, N.W.T. The work of demonstrating that certain cultural practices are definitely the best in certain areas and for special crops is carried widely to the farmers not immediately within reach of the main stations by a system of Illustration Stations, which are conducted on farms whose owners co-operate with the Department, and receive special allowances in return. There are some sixty of these in the wheat country.

At the Central Experimental Farm at Ottawa are the headquarters of the service and trained specialists in bacteriology, botany, chemistry, animal and field husbandry, poultry, industrial fibre plants, forage plants, horticulture and tobacco. Specially trained

men concentrate in the Cereal Division on the development of new varieties of wheat and other cereals, intended to suit better the natural and economic conditions of grain-growing areas, and the succession of tangible improvements in the adaptation of wheat to Western Canadian conditions, best known to the public in the case of Marquis wheat, are the work of this Division. In addition, extensive milling and baking tests are carried on.

The many other services of the Department are of the greatest value to Western agriculture, especially when we consider the economic importance to the wheat-grower of substituting, as fast as conditions permit him, a more permanent type of farming for one-crop wheat production, and a catalogue of their definite successes and their plans for the immediate future would be interesting, had we space for it. As we are dealing here with the special services rendered to wheat-growers, we must specially mention the Seeds Branch, whose control of the purity and quality of seed is perhaps of more importance to the grain-grower than to any other type of farmer. It is discussed more fully in another chapter.

The three Prairie Provinces maintain competent Departments of Agriculture, in every case working in close connection with the Dominion Department, and despite some minor adjustments to be made, we can safely say that provincial and federal co-operation in this line is so organized as to prevent useless duplication and waste of public funds. The universities of the Prairie Provinces, each equipped with a College of Agriculture are a vital part of the work of the Governments. Their activities are very wide in scope, a special feature being the soil surveys now under way, to map

the provinces into districts in which special soil conditions should encourage some differentiation in farming practices and in nature of product.

From all these sources pour a stream of bulletins and pamphlets, and go out a succession of lecturers and demonstrators. The results have been most encouraging, and despite the often heard remark that the farmer cannot be persuaded to take good advice, he does take it. He benefits from it to a degree that cannot well be measured in money, and as each year sees an increase in these services, and a return to the land of a new graduating class from each of the agricultural colleges, the hope is strengthened that the agriculture of the West is to lead in the new movement to make farming an occupation, not for a peasantry, but for a sound yeomanry of educated and competent men.

The special services for the assistance of the women of the rural areas cannot well be described here, but are amazingly well-planned, and play an increasing part in the material and intellectual advancement of woman, which is so marked in its effect in the rural life of the West.

When we turn to the control of the product, we approach an intricate question, and one which has long been the subject of acrimonious discussion. We shall endeavour to explore it without unnecessary reference to this.

The essential portion of the Government's functions in control of the grading of Western wheat is in inspection service, described in another chapter. The law under which this is conducted is known as the Canada Grain Act, the first act of this sort being passed in 1900. Its amendment and re-amendment is a prin-

cipal preoccupation of Parliament, recent changes being in 1925 and 1928, while the last of the many Royal Commissions, Dominion and Provincial, to investigate the grading and marketing of wheat has recently rendered a report which may cause a demand for another series of amendments.

It will be noted that this legislation seems to be never perfected, and possibly that is a necessary condition. On the other hand it is plainly an unfortunate condition that such a matter of pure business as the providing of certificates to assure purchasers of the quality of Canadian grain should be constantly under discussion in Parliament. For one thing, the amount of time given by the national legislature to the subject—one of small direct interest in the other provinces,—has led to some irritation and to some perhaps justifiable criticism of the people of the Prairies. This is most unfortunate, as there are necessarily constant questions of local interest to various sections of the country to be presented to Parliament, and too much time given to the needs of one portion of the country will in the end be resented by others, even if the demands considered during that time are entirely worthy of attention.

On the other hand, in addition to assuring to foreign buyers that the quality of Canadian wheat is dependable, so long as the handling of the sale of the farmer's crop was entirely in the hands of others it was highly important that no less powerful a body than the legislature of the nation should make the regulations needed to ensure that he be not robbed.

Today, however, the situation is entirely different. The greater portion of the wheat crop is actually sold for the grower by his own agents, and there is nothing

to prevent any farmer who is not a member of the Pool from joining it. It is therefore plain that this need of protection no longer exists. Transportation rates are controlled, as far as is practicable, by a judicial body, as well as by the fact that one of the two major transportation organizations is publicly owned; and are further, as we have shown, not a matter of special interest to the wheat-grower, under present market conditions.

The Winnipeg Grain Exchange, often attacked as an organization of the farmer's exploiters, may never have deserved attack, and, in any case, its future is uncertain, as discussed in the chapter on that subject, while the powerful private buyers of wheat are no longer possessors of a monoply.

For these reasons it seems logical to say that the time has come when it is undesirable to have further Governmental interference with the grading of wheat. To those who will argue that, for example, in the parliamentary session of 1928-29 it was necessary for legislation to be passed correcting certain evils arising from mixing of grades, we say that, even if the existence of the evils was proved, it was not shown that it was due to any lack of laws, but to weakness in their enforcement.

Indeed it is to be hoped that the time is coming when the producer will have sufficient confidence in his ability to protect himself—so clearly shown in the organization of the Pool—to ask that the regulations governing the grading of wheat be framed under an amended Grain Act drafted in very general terms, and providing that while the inspection and grading of wheat shall remain under the administration of a Board of Grain Commissioners appointed by the Gov-

ernment, the grades to be used shall be defined by a Grain Council, on which producer and dealer shall be represented, and which will try, in conference with the purchasers, to define grades in such a way as to reflect most accurately the differences in milling value. In this way direct and most valuable contact would be established between producer and ultimate buyer, while the farmer would be assured that grading was done so as to return the fullest possible amount to the producer. In addition we should avoid the very serious danger that such purely technical questions as those of dividing wheat into grades are argued in the national legislature and under conditions which inevitably complicate economic problems with political factors.

To those who might object that there is no reason to include the private wheat dealers in such a Council, we suggest that it would be only fair to them, and in no way dangerous to the producer, who should be represented in such a Council doubly—as producer, and at the same time through the Pool as a dealer.

There is reason to feel that such a system would practically remove the question of wheat grading from the floor of Parliament—to the advantage of the conduct of public business, to the benefit of the wheat trade, and with the removal of a possible source of irritation in the relations of the various communities which make up Canada. And more, that while the Western people have every reason to be proud of the single-minded service given them in the past and at present by their representatives in Parliament, we know by ample example in the history of this and every country that there will always be politicians ready to play on fancied wrongs of the farmer to obtain votes,

and that where, as in Canada at present, such a matter as the marketing of wheat has passed into the hands of the farmer, it is unnecessary to leave it where it can be used as a weapon of partisan or personal political ambition.

In short, let us hope to see the time when Canadian wheat producers will be able to feel that their relations with the national Government are those of citizens of the country, and are not to be complicated or confused by detailed problems of the control of their industry.

It will be objected that a discussion of the relations between the grain-grower and the Government must include reference to definitely Western movements in politics, to the rise of the Progressive Party and its subsequent career. We do not believe this to be part of our task. Some reference is made to these questions in another chapter, and we rest on the ground there arrived at, that while such movements are part of the social development of Western Canada, they represent activities of the wheat-grower as a citizen, and not as a producer.

Nor have we considered it necessary to repeat the history of governmental control of the sale of the crop, dealt with briefly in our account of the rise of the co-operative movement. That was a wholly abnormal and temporary phase, produced by war conditions, and not in keeping with Canadian ideals.

In addition to technical services to the producer and control of quality of product, a Government must supply public services. The original plan for a transcontinental railway was part of the pact of Confederation, and although it became necessary to turn over its completion to a private corporation, the conditions

that then existed make it plain that such a course was not a dereliction of public duty. The construction of the Grand Trunk Pacific-National Transcontinental system was definitely intended to open additional Western areas. The taking over of that system and the Canadian Northern Railway proved that the National Government was alive to its duty to both West and East. The recent success of the West in obtaining the construction of the Hudson Bay Railway is evidence that any further extensions required will be provided.

It can safely be said that in the matter of transportation the wheat country has had proper service from the national Government.

Other public services, such as police, mails, and the like have at all times been at least as well organized in Western Canada as in like countries at a comparable stage in their development.

In the special matter of elevators we have elsewhere listed the accommodation provided by the Government and pointed out that the grain-grower of Western Canada has had unique and most valuable assistance in this regard.

The relations of wheat-grower and Provincial Governments cannot be explored in detail. Naturally, the major industry of the West has exercised great power in framing the legislation of the three Provinces, and much of the public service is arranged to meet the special needs of the industry.

On the whole there is every reason to feel that through the vicissitudes of the political life of Canada since Confederation the wheat-grower has had efficient public service, and fair consideration of his needs, and of the complaints which he has expressed. As we say in another place, Western Canada is far more definite

and unanimous in its expressions of public opinion than any other section of the country, and with the steady growth of its proportionate representation in the national legislature seems unlikely again to experience those periodic waves of feeling that its local needs are neglected that have occurred in the past.

The Government's chief contact with the farmer is necessarily through the Department of Agriculture, both in Dominion and Provincial spheres. What better evidence can be offered of the skill with which this contact is maintained than to give a list of the men who have in recent years filled the highly honourable post of Minister of Agriculture at Ottawa:- the Honourable Sidney Fisher, Martin Burrell, Thomas A. Crerar, S. F. Tolmie, and W. R. Motherwell.

There are many critics of governmental efficiency, and much willingness to use every possible weapon in political strife, but no one can find in this list the name of a man who has not been unquestionably and deeply sincere in his devotion to the interests of agriculture.

Under them the development of the Dominion Department of Agriculture has proceeded in a continuous line, untroubled by attempts to use it as a partisan weapon. It is officered by men of the type of the present Deputy Minister, whose name stands high in the estimation of every farmer. The staff is largely drawn from Canadian farms, through the channel of the many excellent agricultural colleges, and is imbued with a spirit of devotion to duty—a duty interpreted by them as the service of agriculture as the basic industry of the nation—which is refreshing when we consider the general tendency to regard activities of governments as always conducted by mere func-

tionaries, interested in hair-splitting interpretation of petty regulations. Whether that is a fair attitude to any department of the Canadian Government may be questioned, but assuredly no one with even slight experience of the conduct of the Department of Agriculture would suggest it as reflecting the attitude of its officers.

The same is true of the Provincial Departments, and in the case of the Prairie Provinces, the assumption by the state of full responsibility for advanced education brings the universities, with their associated colleges of agriculture, directly into action as part of the Governmental machinery for the assistance of the farmer in his struggle for efficiency and for a fair standard of living.

The Government at Ottawa has taken a wise course in refusing to be too paternalistic, and in encouraging the formation of many agricultural councils, to represent the interest of various special industries.

One possible criticism of present Governmental organization may be that the settlement of immigrants on farms in the West has perhaps not been closely enough watched and supervised by the technical services of the Departments of Agriculture. Much lost effort would have been saved if this had been planned in the early days of settlement, and there is still much to be done in the direction of bringing the new settler more immediately and closely in touch with the service for which he is to pay, and which is his best guide.

We hear much of the difficulty of placing settlers permanently on the land, of argument as to the amount of capital needed by the new settler, and of what this country has to offer the agricultural immigrant. These are questions on which the opinions of technical ex-

perts in agriculture are most valuable, and it is surprising to find how often they are omitted from the discussions on the subject.

This country offers its farmers a unique service, for which they pay, and of which they more and more avail themselves. Nowhere is it more efficient than where it touches the growing of grain in Western Canada.

CHAPTER XVII

THE FUTURE OF WHEAT-GROWING

PROPHECY requires inspiration, and cannot result from a mere exercise in logic. In addition, human knowledge of natural, social and economic laws is insufficient to furnish all the data needed for such a prophecy as would cover the future of one of man's most important activities—one of his greatest attempts to tame nature to his use.

The future of wheat-growing in Western Canada might be affected by some change in world climate conditions; we know that they have occurred in the past, and have but slight knowledge of how sudden was their incidence, whether they were produced by some sudden diastrophism—some great distortion of the shape of the planet—or whether they came slowly and inexorably following slow and almost untraceable annual changes in temperatures. Naturally, we must follow the specialist in meteorology who says that recorded history shows no definite trends in that regard.

It might be affected by the constantly promised coming of synthetic foods, an entirely practicable step from the present position of science—on the laboratory scale; or in the direction suggested by a man who has promised if necessary to provide all North America with yeast enough for its sustenance from one ten-storey factory. So far, however, the yeast-grower has not given us the details of his plan for providing a water supply about equal to that now used annually

by all the crops of the continent, nor have the advocates of synthetic foods explained who will keep whole countrysides from relapsing to forest and swamp if the farmer is no longer paid to do it.

It might, much more reasonably, be affected by social experiments in the direction of better organization of human effort, or by failures of the present economic system to function. Impressive changes in the relative reward paid to each economic class for its share in the world's work might occur. The present financial system might break down and carry with it all the complex structure of modern civilization, or a war occur on a scale which would bring about the same effect. These things are often forecast, but we disclaim any ability to define their likelihood, and take refuge in a paraphrase of a remark of John Bright's that "it appears to us that a civilization will stand a great amount of ruin."

We shall assume a continuance of the present system of nature and society and attempt to show how it will affect the production of wheat in Western Canada in the next few years.

In the first place what of quantity? Are some current predictions reasonable, and shall we see a steady growth at the rate of increase shown in the expansion of acreage from the two and a half million of 1900 to the twenty-two million of 1928, and of production from thirty million bushels to well over half a billion? Straight line increase in the crop at that rate would bring the figures for some favourable year to a billion bushels in little more than another twenty years. In addition, we should have twenty years in which to improve varieties for yield, and to add cultural practices, to apply fertilizers and to control disease.

Or, on the other hand, to quote an occasional pessimist, shall we in another twenty years have so exhausted the soil by repeated cropping and no return of used plant food that our annual yield will drop according to known laws so that no conceivable increase in the acreage under plough can balance the steady diminution of yield from worn-out lands?

It might be well, before committing ourselves to either of these views, to analyze briefly the reasons for past increase in acreage, and from that to proceed to consider whether the factors which have operated to make the settlement of Western Canada, and its increasing share in the provision of the world's staple foodstuff one of the miracles of modern times, are still operating, and if so, whether their effect is increasing or diminishing.

To assist in this we have prepared a chart showing graphs which follow the reported changes in acreage and crop production for almost all the history of Western Canada as a wheat-growing country, and also record the course of certain other changes which seem to us to be important in the matter. We do not pretend that all the factors recorded are vital, nor that all which are vital have been recorded. The famous statistician of world wheat production, Mr. George Broomhall, of Liverpool, has issued a chart showing world prices of wheat from 1800 to 1928, and on it has noted, without comment, certain events which may possibly have been important in their market effect. The events listed range from the potato famine in Ireland to the Great War. Now price is but a single factor in determining the volume of production of a commodity, and we believe has never been the most important in the case of wheat-growing in Western

Canada; if then practically every major historical event may be considered of effect on that one of the many factors which control the acreage annually seeded, what are we to say of the total impossibility of making a formula that would cover the growth of wheat production in Western Canada?

There are, however, factors which must obviously have greatly affected it, and the one which comes most readily to mind is the fact that not two generations ago the vast and fertile plain with which we are dealing was ownerless. The division of this huge estate drew men from all over the world in one of the great land rushes. The rapidity with which it developed, rose to its peak, and dwindled is well illustrated by the curve showing "Homesteads Entered less Cancellations". The coming of the first transcontinental railway produced a temporary stimulus to this process of land division, but it did not enter on its major phase until the years just preceding the commencement of the great era of railway construction, and attention is drawn to the close correspondence between the curve we have mentioned and that showing railway mileage constructed.

We note then first that the sharp curve upward of wheat production in the early part of the twentieth century seems to have resulted from, or at least coincided with, the opening of the country by the construction of a gridiron of railway lines, and a rush of landseekers to possess themselves of part of the rich acres thus made available for settlement.

The correspondence between these curves ceases, however, just prior to the Great War, for despite the often-expressed view that the flood of immigration was checked by that event, and a temporary cessation

put to the settling of new land, we note that the net increase in homesteading had commenced to decline by 1911, much before the names of Sarajevo, of the Archduke Franz Ferdinand, and of the protagonists in the war's opening had come to mean anything to the ordinary citizen.

What ended homesteading? Simply the lack of suitable homesteads, which brings us directly to the consideration of the whole question of free land, and the allied query as to the true size of Western Canada, as an agricultural area. For the moment we may lay them aside for future exploration.

It is assuredly evident from the curve showing "Immigration giving Prairie Provinces as Destination" that we have not exaggerated the attraction of homesteads, since the correspondence in this case is marked. This also must later be considered, and future trends in immigration dealt with.

Fluctuations in the price of wheat are not in our opinion the major factor in increasing production, or even the attempt at production shown by acreage seeded. We have based our opinion here on the condition shown by comparing the curve "Price of Wheat" with that showing acreage, and lay stress on this, since a common interpretation of wheat-growing difficulties in the West is to say that the farmer greatly expanded his operations under the stimulus of high war-time prices, and then suffered by the collapse of the artificial demand. In fact, the farmer did nothing of the kind. His response in increased acreage to war prices does not vary from the general trend of the curve. It probably stimulated acreage increase a little, with accompanying depression in post-war years, but there is not the slightest reason to believe that the position

of the acreage curve as a whole has been affected. Indeed, the sharpest upward turn of acreage to its highest peak but one was for the crop of 1921, although the effect of deflation had commenced a year before to pull prices down. This also we must return to.

Indeed, the only curve on the chart that bears any general resemblance throughout its course to that of acreage seeded is the curve of population growth in the Prairie Provinces.

A reasonable interpretation of these facts would be to say that the lure of free land accessible by transportation cheap and efficient enough to make its cultivation profitable drew a great inrush of population which, once established in the country, commenced to specialize its occupations—it being a well-known fact that most of the other activities of the West have been, and still largely are, created and manned by people who came there originally to homestead. The division of the land between private owners did not produce a rush to sow wheat, nor did the end of that period put a stop to increase in production.

Predictions therefore based on past history should not lead us to expect production to respond rapidly to another rush of land-seekers, but for such an event perhaps to speed up the rate of increase in acreage steadily, and the resulting curve to be still fairly uniform, continuing upward long after the end of the rush.

Men and women came to Western Canada in the great boom years to obtain land, not necessarily to farm it. The resulting population then "shook itself down" to the task of creating a whole community, each individual seeking some task within his powers, attractive to his tastes, or economically profitable. As

the community increased in number the members who had decided to stick to agriculture slowly and steadily increased the acreage of the main crop of the country.

Now what are the prospects of a recurrence of such a boom in homesteading—of another rush of settlers to seize on the remaining free lands?

The total area of the Prairie Provinces is 723,051 square miles of land. The total estimated agricultural area and the portion of that now privately owned follow:

Total arable land	Acres
Manitoba	25,000,000
Saskatchewan	60,000,000
Alberta	72,000,000
	157,000,000

This is made up as follows:

	Occupied Farm Lands (Census of 1926)	Privately Owned Unoccupied Lands (Survey of 1922)	Public Owned Lands
Manitoba	14,411,597	2,328,160	8,250,000
Saskatchewan	45,945,410	7,400,320	6,650,000
Alberta	28,572,987	8,274,560	35,000,000

(From a Government estimate)

Before proceeding further let us note that "free land" is not all equally attractive, nor even "free land capable of agricultural use". Even land of equal fertility is not equally attractive, since the expense required to bring under cultivation a homestead of even the finest fertile soil is so much greater when it is covered with a growth of three inch poplars than when

it is an open plain as to constitute a serious difference in value, either to the man who intends to farm it himself, or to the man who proposes to sell it as soon as he has acquired freehold possession by doing the simple "homestead duties" imposed by the Government.

It would be impossible to obtain exact figures of the remaining public lands of the Prairie Provinces classified in this manner, but it is certain that the estimate of agricultural land still available includes large areas of land which cannot by any stretch of the imagination be considered as the lure for homesteaders that the gumbo land of the Regina Plains was at one time—for example. We do not know the precise standard by which the Government department concerned divides land suitable for agriculture from other land, but that it is a standard which enables them to include wooded land, and land which might cost a great deal to bring under cultivation will be obvious when we note that they show the Province of New Brunswick as still having sixty per cent. of its agricultural area available for occupation. To anyone who knows that country this is sufficient indication that land may be far from what the original Prairie homestead areas were, and still be considered as possibly suited for agriculture.

Indeed, when we consider the situation in the light of personal observation, we are forced to the conclusion that the amount of land still available for homesteading and of the type which once attracted the great rush of settlers is extremely small, if any exists at all. After all, some two million people live in Western Canada, many of them highly expert in land values, and few indifferent to profit. The areas of the West conceivably useful for agriculture are well known,

well mapped, and fully explored. To assume that somewhere are vast stretches of land which might easily be made marketable by labour not out of proportion to present land values, and especially when it is considered that most of the supposed areas lie in the northerly part of the country where rainfall is especially generous, and the original soil very rich, is to misunderstand the business ability of the West.

The land available for agriculture in the West, when measured by the standards of the period of great immigration, is then not in excess of the official estimate, possibly much below it. According to some observers much land which is now cropped should be abandoned, and much once homesteaded and patented has been abandoned.

We do not here deal with some areas of land owned by the railways and the Hudson's Bay Company, much of it fertile, and offered for sale on easy terms, as this is not "free" land.

There is the special case of the Peace River District, the settlement of which ahead of better transportation facilities might be considered to be delayed. Official estimates as to the homestead situation there, which must be modified and cannot be increased by further test of the area, indicate in any case that this area, promising as it unquestionably is, does not offer homestead opportunities on a scale likely to bring another rush of settlers comparable to that of 1900-1913.

The district is estimated to contain 47,000,000 acres, of which somewhat over 10,000,000 have been surveyed, 1,331,000 disposed of to settlers and 7,320,000 remained available for homesteading according to a report published in 1928. The district is unquestionably fertile and capable of sustaining a sound agricul-

ture, although some governmental officials are reported to recommend its development from the first as a mixed farming area rather than for one-crop grain-growing. It is served by railways recently taken over by a company jointly owned by the two great transportation systems, who may be relied upon to push its opening as fast as is proper. The land of the district is in any case included in the estimate of all arable land in the Prairie Provinces given above.

We wish to be explicit in saying that we do not deny the possible and often certain value of other untouched areas especially in the Northern districts, but are merely assembling reasons for not expecting a duplication, or even a smaller repetition, of the great homestead rush. We deal later with the possible ultimate limits of wheat production in the West, and for the moment shall only say that settlement of the land still remaining seems likely to be undertaken only by the most genuine type of homesteader—the man who comes, not to obtain land as a possible commercial asset, but as the basis for his future life. To such a man the nominal cost of clearing land is an abstraction. He wins his home in a struggle with nature in which figures cannot defeat him.

The number of immigrants, then, giving the Prairie Provinces as their destination must depend more and more, not on the lure of land as an easy road to wealth —at present—but on the possibilities of agriculture as a paying occupation, and on other chances to earn a livelihood. In the first case, we are dealing with a world condition in which agriculture is not at the moment tending to attract population. This is shown in almost every country, and is met by measures of every kind—the only apparently immediately successful one

being the order of the dictator of a European country to his police force that farmers moving from country to city are to be returned by force.

The alteration of this cosmic condition is not in sight as long as industrial civilization continues to increase the comfort of urban communities more rapidly than of rural. The commonest answer to this is that it is within the reach of rural dwellers to adapt to their use, and more freely than at present, the methods of industry. That again we must return to, at the moment pointing out that such a trend, and accompanying stimulation of mechanization of agriculture, would not expand immigration to Western Canada—which is the present subject.

When we come to possible immigration for industrial employment, we are reminded that the total curve of population growth seemed to correspond roughly with that of increase in acreage seeded. It may seem ridiculous to suggest that the building of a few factories in Western cities might stimulate the production of wheat, but there are reasons, suggested when we touch on the influence of social conditions on wheat production, to feel that this is perhaps the most assured of all the factors mentioned as likely to increase production.

We have argued that fluctuations in wheat prices do not seem to affect production, and we must attempt to analyze the reasons, and in doing so come at once to the effect of social conditions on wheat production. In the first place, if we are correct in assuming that there is no great quantity of "free land" in the old sense available, the effect of increased prices tends to be absorbed in land values, and thus seems to check production at least to the extent of limiting the change

of farms from hand to hand. In every community the sale of farms must continue actively, if the level of total production is to be maintained without recourse to more intensive cultivation, since a steady number of farms must come on to the market, owing to the death of the owner-operator, to ill-health and to many other influences. Increases in prices of product always tend to raise land values, and thus to check the ease of sale. It is often assumed that no one ever lets land lie idle in an agricultural community for speculative reasons, but that is absurd. The tendency is marked for landowners, especially those who have turned to other occupations, or amassed some reserves, to let their property remain unproductive while they await a sale. It is well shown in the suburbs of great cities, where the prospect of a market for farm lands at the price of city lots will spread a blight over agriculture. Taxation of idle land seems to fail as a remedy, since even the transfer of farm lands from the agricultural to the residential schedule of taxes, which might be expected to force the owner to wring what small earnings he may from the idle acres, seems merely to aggravate the condition.

Thus, even permanently increased prices for wheat may not operate to increase the acreage of land farmed by newcomers to the business until the resulting increase in land values overcomes the cost of clearing and bringing under cultivation the areas of fertile soil still bush-covered, inaccessible to transportation, or otherwise in need of capital expenditures, and here the increase would be limited by the fact that many a man may be able to purchase a ready-equipped property on easy terms at a much higher price than he would pay for bare land to which he must give many months of labour before it would provide him with a living.

An additional and important effect of increase in price of product is to ease the debt conditions of a district. The great increase in acreage sown in a falling market to which we have referred was undoubtedly due to pressing need to risk a greater acreage in order to meet obligations. Had the price risen instead of falling, much less effort would have eased the strain, and indeed the strain would not have occurred, as loans which were forced to collection would have remained well-secured.

It is a mistake to assume that men and women are economic machines and operate solely to obtain monetary profit. It is also a mistake to believe that profit is measurable in money alone. Profit to many a man is the privilege of planting a new windbreak, a new hedge, some flowers; it may be in the form of a trip to a former home, or of a new radio set, and he may still not wish two trips or three radio sets. The life of every farmer is laborious, and in many cases it is lonely. Profit may seem to be a temporary correction of these conditions, at the expense of production.

Other factors often paraded as inevitably leading to steady and even accelerated increase in production are the progress of science in aiding production, and especially the help of the newer agricultural machinery.

Scientific aid to agriculture may help the farmer to save a great deal of the crops now destroyed by natural forces or by pests. It may aid him to win a larger production from the same acreage by proper fertilization. It may furnish him with better yielding plants. We have touched on all these questions in other places, and see no reason to feel that Western Canada is yet measurably in sight of the time when the production of wheat can be imagined to be limited in extent

by the lack of scientific knowledge, however much the profits of the individual farmer may be helped, and we have just said that profit may not increase production.

When we approach the mechanization of agriculture we come to another and wholly different subject. It progresses rapidly, and we have frequent forecasts of its effect, either as enabling a few skilled operators to produce enough to feed the world, or as so spreading cultivation over otherwise unprofitable lands as to flood the world with food. It appears to us that prophecy in either of these directions is unwise.

In the first place, the analogy between the application of power to agriculture, and its use in other industries is not exact. The market for motor cars or toothpaste may be limitless from our present viewpoint—assuming steady increase in the economic level of great masses of people. Even steady increase in economic levels of the world does not foreshadow an increase in foodstuff consumption on the same scale, for obvious reasons, not the least of them the bulk of a man's requirements of food as compared with the motor cars or toothpaste that he might consume in the same time. We have elsewhere suggested that present tendencies are for certain countries to increase their per capita consumption of food, but a lot of food is now being eaten, while no motor cars and little toothpaste were used fifty years ago. The application of power to an industry is very much easier when it can be used at an early stage in a great part of the industry, and there is hope for a market for the resulting rapid increase in production on a scale sufficient to keep the change going on and intensifying. That is true of many industries, but scarcely of agriculture.

In addition, demand for food is not cumulative. A

period of depression may create a "stored-up" demand for luxuries, but not for wheat.

Again, the application of the machine to industry was spurred on by the sole desire to increase production, and was fathered by capitalists—in esse or in posse—who hoped thus to increase the output per man of their employees. In agriculture this sometimes occurs, but the typical motive for replacing hand by machine labour is to permit dispensing with employees. In Western Canada the capitalist is in this case normally his own chief worker, and buys a machine to assist him in being independent of hired labour rather than in order to increase the output of the labour available. There is no analogy in the two cases.

It is of course suggested that this condition will end and the individual farm with an owner-operator be replaced by great agricultural corporations, employing hundreds of specialists equipped with machines. That may occur, but up to the present the employment of large blocks of capital in agriculture on the lines made familiar in industry has not been promising in results. Nature interposes certain objections, in the variability of seasons and particularly in the impossibility of providing a steady long-term repetition of the same operation. Mr. Ford may plan for the legendary operator to put in Bolt 37 indefinitely, until the design of the car is changed, but the man who has carefully developed the technique of running a combine will have to change his task when he comes to the end of the supply of ripe wheat for that year.

Moreover, we have already pointed out the ability of the individual farmer to raise or lower his own wages within a great range, and the corporation which attempted to find the same flexibility of expenditure

would soon find that its system was not in keeping with the customs of industrial communities. On the whole there seem to be economic reasons for the failure of many attempts to apply modern corporation methods of production to agriculture. It is to be noted that we say methods of production, since there does seem to be some tendency to apply the same methods of finance to large-scale landownership, which we discuss in its proper place.

The social factors are even more potent in limiting the application of machinery on existing farms, for the resultant inevitable trend to lessening population of the countryside is exactly the reverse of the ideal of the farmer. A well-known leader in Western agriculture has exclaimed "Now that I have a combine, in order to make it pay I am farming two thousand acres where I once farmed one thousand. At this rate soon a handful of men will farm Alberta—but who will put out the prairie fires?" Modern industrialism adds to the population of the crowded city, but will lessen that of the countryside, and men do not live in the country only to gain money, but to gain comfort. The West may not be ready to copy the ribbon-farm of old Quebec, where the houses were built in comfortable proximity and the farms then cut to suit that ideal, but it is not willingly going to make life in the countryside a hopeless exile from human companionship to meet the theory that machinery must dominate.

Machinery, however, is applied to raw materials not only to increase their utilization per worker but to add to the completeness of utilization. The old saying that nothing except the squeal is lost in packing hogs reflects one of the outstanding advantages of modern mechanical methods, but that is lost in agriculture. The

raw material is the fertility of the soil, and except in a few cases, such as ploughing to greater depth, hand labour is far more effective in the extraction of plant food from a given area.

Lest we should be suspected of suggesting that machinery has no place in agriculture, let us say plainly that it has, on an increasing scale. Its place is exactly where we have indicated—as an aid to the individual farmer, as a means of suddenly expanding the man power of the farm to meet seasonal needs, and as means of avoiding useless expenditure of physical effort. Those are valuable contributions to rural life, and one of the world's greatest industries has been built upon them. The manufacturers of agricultural machinery have never for a moment been led astray by the idea that they were industrializing the soil, and have kept the design of their product well in line with its real uses. As a result, their prospects of increase in business are at present unlimited in countries where the per capita resources in unused plant food are fairly high, and there are even special cases where the machine may successfully compete with labour in the cultivation of old and long-worked soils.

What we argue is that there is no mechanical revolution about to destroy the historic type of our agriculture, as once the old industrial life was altered completely by the coming of the power loom.

Indeed the false analogy between agriculture and industry leads to many other erroneous forecasts. We are being constantly told by amateurs that this is the age of specialization, and that each area will tend more and more to specialize in some one product. There are cases of specialization in agriculture that are genuine responses to economic progress—such as the celery

beds near Chicago. Specialization such as that of the West in wheat production is not, however, the end of a process of evolution, but the beginning. Men do not grow wheat there exclusively because that is the ideal method of tilling the soil, but because agriculture can find no other present economic outlet. Every effort of the leaders of agricultural progress in Western Canada is directed, and with entire wisdom, toward less specialization, and to substituting a more complete and satisfactory general agriculture for one-crop wheat growing. The present specialization of Western agriculture can no more be quoted as evidence of progress than could the older utilization of virgin forests in which only the largest trees and the finest lumber were recovered. Modern forestry practice is entirely in the other direction.

We come to the point where we begin to see that agriculture is not a part of modern industrial civilization, much as the two may mesh in many places. There are two types of society—the urban and the rural. Rural society is typified by the condition of England just prior to the Napoleonic wars. It was there constructed of landowner, farmer, and labourer. The landowner was the capitalist, the farmer the tenant and manager, the labourer the worker. It was a fairly complete society, producing much in the way of comfort and of luxury. We can not concern ourselves at this point with the division of the product; perhaps it was fair, perhaps not. Modern industrial society argues that not only was it unfair but that it was insufficient—the total production being too little to give every man something in the way of comfort. That is true, but it is usually much exaggerated. The proportion of the total production taken by the ruling classes was very

high and its division between all would have greatly raised the level of the reward of each.

That society broke down chiefly as a result of the flood of food from the new lands then being opened. The throwing on the market of the ownerless land of North America wrecked the feudal power of the English landlord. The agriculture which thus came into existence in the new countries was really urban in type. The German philosopher, Spengler, says truly that there are no rural people in North America, but urban people living in the country. Despite the general truth of that, the rural tradition does not die down. A farmer in Western Canada provided with every machine, using almost the same methods that are applied to urban industry, remains a farmer.

Men are farmers because they wish to live in the country, and love the soil. It is more difficult to move them than to move trees. They are not the mere economic units used by many students to obtain their formulae showing how agriculture will change in the future. They are definitely human beings, to whom a certain piece of prairie, or some special corner in the hills, is home.

Their valuation of everything in life is affected by that. An immigrant from Central Europe who homesteaded in a district in which tremendous effort was necessary to clear the land and put it under crop survived the task, and saw his acres stretching smooth and laden with crops. He was asked to put a price on the property, which might reasonably be valued at $3,000. He at once said $30,000. He had made that place with his own hands.

Thus the same spirit which once made the ancient feudalism of Europe a fact is at work in Western Can-

ada. It does not follow that it will produce a feudalism, or even that it will survive. While it exists, however, and it seems to draw new strength from the soil in each generation, it will modify the effect of what might seem to be inevitable economic reactions.

There are those who suggest that rural life will return to power since the existence of modern industrialism is based on the food produced on cheap new land; that modern urban life is a temporary phase, to collapse in the near future. Speculations in that direction do not seem fruitful, but there is at least reason to feel that the time has not come for modern industrialism to sweep over the last vestiges of rural civilization, and to substitute for farms and homesteads a vast system of machine-worked plantations manned by mechanics living in great cities.

Certainly in Western Canada the farmer is showing no tendency to further surrender to urban customs. He may provide himself with almost all the ingenious devices of the city, but he also plants trees and hedges. He is not planning to turn his acres into part of a great food-factory, but is "digging himself in" with every sign of intention to remain, and to struggle long before he is swept away in the tide of industrialism.

We make no apology for this apparent discursion into academic speculation. This question of rural or urban mentality is to affect profoundly the production of wheat. The struggle is taking a definite form in Russia, and its result there must be of deep interest to the world at large. There the revolution ended in the redistribution of the land among the landowners. Much of Russia under the old regime was divided between great landowners and much was in the hands of the type of village-commune known as the "mir". The

appeal of the communists of the cities to the farmer was that they would give him the lands of the great lords, and that was done, in a welter of bloodshed, and in the light of burning castles. Undoubtedly the men who led the revolution had a clear plan in mind, under which the land of Russia was to be nationalized, and communistically organized labour applied to it. The experiment was, however, never tried, since the peasant who had been promised land took it, and put a fence around it at once. He was no logical communist.

The "mir" land was no more accessible for experimentation in communistic agriculture, since the peasant of the "mir" villages was only a communist within his own village-family. The land of the "mir" belonged to the village-family, not to a vague and distant abstraction known as the state. The only land left to the communist state was that not yet settled and cultivated. Details of the extent and type of this are not fully available, but on the whole it seems to be sub-marginal in soil type and moisture conditions.

In the years which have since elapsed the communist state has never mastered the Russian countryside. It would be improper to attempt a full discussion of this here, but it is well-known that communist methods, certainly in the disturbed condition of post-war Russia, failed to assure to the farmer a fair return in city commodities and services for the grain and produce that he was expected to provide in taxation. He apparently has succeeded in a fairly general strike in the matter of tax-paying, and the city communists have been forced at least unwillingly to permit him to remain a capitalist and an individualist—the "kulak" or farmer being the favourite object of communist denunciation.

Indeed, he has gone farther, and tried to revive the small grist mills and woollen mills, the tanneries and other small local industries which are typical of a rural as contrasted with an urban civilization. The city communist state, however, needs the materials with which to build an international commerce, and grain would be an ideal one. Therefore they have undertaken to establish a system of great industrial, highly mechanized "wheat factories" where suitable areas exist not yet divided among individual owners, or by forcible communization of the farms of a district.

It will not be possible to decide the success or otherwise of this attempt for a long time. It will last longer and be more apparently successful if it is purely one-crop "soil mining" than if it is based on sound rotations and proper maintenance of soil fertility. Assertions of its success or failure cannot be made, except by propagandists, on the evidence of even several years. It is, however, a most interesting experiment, and one of great interest to Western Canada, for its results, even allowing for differing racial and social conditions, must affect the balance between rural and urban factors in the development of this country.

We feel reasonably safe in forecasting its failure, and its end in the occupation of the land exploited—if it proves at all suitable to agriculture—by home-loving, home-making farmers.

It is evident that we incline to believe in the ultimate victory of the rural over the urban trend in the development of, at least, Western Canada.

It might possibly be expected that this conclusion would mean that we protest against industrial development, but we feel that a careful following of our argument will not lead to this. We are of entirely the op-

posite view. To return to our chart, we again note the fact that the only curve showing general resemblance to that of wheat acreage is the one of population growth. That in our opinion is not accidental and is highly significant. It indicates definitely that the production of wheat in Western Canada, even by the one-crop method, is not exploitation, nor yet the application of industrial methods to the soil, but a genuine agriculture. Like any other agriculture—for agriculture is not an extractive industry, dependent on a temporary supply of natural wealth, but genetic and wealth-creating—this, even if apparently and for the moment extractive, is a permanent development, whose success will be dependent on, or if you prefer it, fundamentally necessary for, the growth of the whole community.

Wheat production is and always will be as long as it remains a part of Western farming, also a part of the life of Western Canada, and while the curve of increase in the acreage sown to wheat will probably not exactly coincide with that of growth of population, it will always be true that Western Canada will produce wheat, not in proportion to its possession of cheap land, not in proportion to its mileage of railways, nor its number of incoming immigrants, nor to the advances of science, nor the increase in price, but in proportion to its general growth as a country, which will best be measured by its increase in population.

It is, of course, impossible to forecast the rate of that increase but present methods in the study of population growth would make us believe that it will be permanent in our era, and steady rather than rapid in the near future. These methods would also lead us to feel that its growth will be the result of certain natural

laws and not of the efforts of men. That is a conclusion that more and more influences scientific thought. The human animal may have developed many excellences, as compared with others, but he still remains as dependent on his entire environment as the clover bacilli that come in a bottle are dependent on the food and air stored there for them.

We may avoid extremist attitudes, and admit that wise administration will direct the growth of population and the type of the resulting society, without impairing our fundamental belief that the total number of people in any country at any given time is not within the control of any government. It would be unwise to devote too much time here to a subject already extensively explored by specialists, but we may quote the experience of the United States, where the application of stringent limitation to immigration still found the annual increase exactly where it had been forecast by the studies which led to alarm and to the efforts to check population increase.

From this we deduce that the population of Western Canada, which we foresee as the index to wheat acreage, cannot be controlled in number by even the most skilful legislation, but will grow regardless of the regulations of the Department of Immigration, and as fast as the resultant of a complex series of natural and social forces will permit.

Certain other conclusions now follow. One is that the man who most fears too rapid increase in wheat production might well demand effort to stimulate other types of agriculture, and other general activities. The greater the proportion of non-wheat growers in the population, the less chance of over-production. Moreover, under existing conditions, the greater the popula-

tion, the more complex economically will it become, and again the less the proportion of wheat-growers. For this reason there should be no connection in the mind of anyone between immigration restriction and wheat production, or if there is, it should tend to encourage every thinker to advocate the least possible restriction, and the greatest freedom of admission for all economic classes, as fast as general economic progress makes room for them.

When we leave the question of control of numbers and come to the control of types we are in a different position. Certainly the unchecked entrance of every applicant might lead to a preponderance, or at any rate too great a proportion of racial and social types which are undesirable from the standpoint of the present inhabitants, and common sense will show that they have the right, and the power to exercise it, to demand that their plans for a certain type of society shall be respected. If complete free trade in commodities may change the type of industrial development in a country, complete free trade in man may change the much more important type of its social structure. Control here is possible. That it will be applied is certain.

The question of the British proportion in total immigration is at once in issue. It presents undoubted difficulties, since Britain is predominantly urban in type. In addition rural life in Britain is peculiarly pleasant, and every inhabitant even of the worst slum pictures it in very rosy colours. The reality may lack much in the way of opportunity, of liberty, and of monetary reward such as can be gained by the same amount of industry and skill in Western Canada, but the picture is apt to remain. In real life an Oxfordshire farmer who fancies horses and hounds has been

known to say that he would not go to Canada after he had learned that barbed wire takes the place there of the hedges which make fox-hunting possible. It is possible that the contrast between the realities of Prairie farming and the expectation has been sharpened too often by unwise propaganda, overestimating the rewards, and underestimating the capital of money, of courage, or of industry that must be invested. Public opinion in Canada seems in general, however, desirous of keeping the British proportion in the national stock at least level with the increase in population, and depression in certain trades in Britain has encouraged British leaders of opinion to look to Canada, and in particular to Western Canada, for an outlet for the surplus people of the old land.

It is possible that nothing has done more to check the realization of plans in this direction than the many speeches and articles in which Canada has been held up as possessing almost unlimited areas capable of being tilled. That is geographically true, but we have given reasons for believing that it is not true to any extent if we consider the areas capable of immediate agricultural development under present conditions, and we repeat that this is not a good argument for immigration. It is indeed a deterrent, for in Britain, as in many other countries, there is a belief that that time is still here when a man might pick and choose himself a grant of free, level and fertile soil in a good climate at any time—exactly as say twenty or thirty years ago. The people of Britain particularly are impressed with this idea. It affects them at a time when they are attempting to find permanent solution of many problems in their social life, some of which were created by the war, and others inherited from long ago. It is

natural in the circumstances that they should take the attitude that they will give the new plans for social betterment a fair trial, remembering always that in the end they, their sons or their grandsons may always turn to Canada, to carve a home out of the still unlimited public lands.

Were they to appreciate generally the actual condition—best described by saying that Canada still offers the greatest chance in the world for a man to obtain a home by a modest investment of money or labour, but that the opportunity is steadily decreasing—the effect on British willingness to migrate might be marked. The offer of a chance to settle in a vast, even if fertile wilderness does not seem to appeal. It might be well to try the argument that this is now a settled country, but still young enough to make the newcomer's chances bright.

The plain fact is that there is every reason to expect considerable further migration into Western Canada, and while the British settler is wanted, the decision whether he will come or not is one for him to make before it becomes too late. Immigration is not done with Western Canada, even if we consider possible expansion of population by agriculture alone, but the time is in sight when we shall no longer be calling for men to till the vast open spaces.

At the present moment immigration seems to depend largely on two factors; one is the skilfully organized efforts of great corporations to settle farmers on their lands, or on lands which have passed into the hands of mortgagees, an enterprise that is good as far as it provides some direction for the efforts of the newcomers; the other is the more or less free influx of general labourers seeking employment, which must depend on

labour conditions in agriculture, on the opening of new industrial centres, and on the exploitation of the great mineral and other natural riches now known to exist. There seems to be no reason to anticipate that either of these will produce any ill-effects, if temporarily controlled as business conditions vary, and if frank definition is made of the racial or social types to be admitted. Beyond those there seems little reason for the Government to go.

We return then to our statement that the population of Western Canada will grow steadily and that with it there will be a steady expansion of wheat acreage. The increase will not be entirely uniform, but will sometimes go a little too fast, sometimes slow down too much. The general trend will be up, and probably at a very slowly diminishing rate of increase.

At the same time there will probably be a change in the position of wheat culture in the general agriculture of the country. Wheat as a one-crop system is, as we have said, a pioneer expedient, and it must ultimately be changed for something more stable. The creation of industrial centres, the development of mining and other complexities in the social structure will increase the local market for produce of many kinds, and wheat will more and more be grown by farmers engaged in a mixed agriculture. The yield can be maintained and increased. The constant campaign for better seed, better cultural practices, and all the rest of the ideals so uniformly advocated by the farmer's technical advisers, will be more and more successful.

To those who point to the greater vitality of agricultural life in the West than in the East, and argue from it that for the West to copy the East in type of agriculture is to slide backwards, we suggest that the flood of

wheat from the West was most potent in upsetting the sound economic basis of Eastern farming, and that in the case of the West, this phase of the world's agricultural history is past. The West can base its practices on the possession of soil far from exhaustion, of immeasurable improvement in technique and appliances, and on ample markets in sight, domestic and foreign. It may have a surplus of wheat to export for a long time to come, without any serious draft on its unused soil resources, and with an expanding market locally for other products. We have assembled many reasons for doubting very rapid increase in production, but we can see none for many years to prevent a steady progress.

The limit of the production of wheat is not in sight. It is possible to find in some parts of Southern China areas producing all the food that it is possible for them to yield as far as our present knowledge goes; trying each year to produce more; and meeting the inevitable failure by wholesale starvation. It is possible to imagine a similar condition in Western Canada, but to do so assumes the conversion of the West to Chinese ideals of life.

The limit to production of wheat will be found when the West finds that further opening of new lands, or further intensification of production per acre would involve too great additions to the selling price of the product, or too much lowering of returns to the worker. Neither of these conditions is yet even dimly in sight.

We have assumed then a steady growth in the production of wheat, allowing for the great fluctuations due to rainfall. We see it all coming from a new type of agriculture. What will be the social structure of the community that practises it?

That is not dependent on known natural laws, for man is free to choose the lines of his own development, or if hampered it is by laws so obscure that we cannot yet formulate them, or even be sure of their existence. We look on the present social structure of the West as the outcome of what we regard as the early stages in making a country. What will it be like when the country is made?

We have denied the assumption that the end will be an empty countryside, covered with fields of grain, and tilled by huge machines. That is a picture of the condition of Italy in the later stages of Roman civilization, if we replace the slaves of the "latifundia" with mechanical power. That is, however, an important replacement. Slavery may have been a very detestable institution, but it produced a very comfortable life for the ruling class, surrounded by willing servants. Roman landlords might purchase not only skilled mechanics, but painters, poets and musicians. In the end the slave was not a mere toiler, but a human being, and able to contribute to the lord all the comforts of human companionship. A great estate tilled by huge machines might not be as pleasant.

Feudalism is suggested as another alternative. That has already been tried, and as once developed was a very stable form of society, with much to make it valuable alike to landlord and to serf. Had the feudalism of the English countryside a century and a half ago been permitted to develop without the interference of outside forces, it might have become permanent on a fair basis of division of reward between landowner and landworker. Given time, and an improving attitude of social justice in the ruling class, much might have been accomplished for the material comfort of the

worker—even without mechanical power. With that addition—if it should be possible to combine it with such a social system—a new, an informed and a humane feudalism might create a permanent social system of a high order.

It may be argued that we are looking far ahead when we mention feudalism as a possible social system in Western Canada, but are we? It is defined primarily as a method of land tenure. It is true that land is at present generally the property of the landworker in Western Canada, but that condition is changing. Tenancy is on the increase. Figures to show that follow:

	Total Farms	Owner-Operated	Tenant	Part Owner Part Tenant
1901	55,176	50,663	2,037	2,476
1926	248,162	171,768	40,261	36,133

The percentage of owner-operated farms thus having fallen from 92 to 69 in twenty-five years.

The landlord and tenant system is not necessarily bad. It provides a method by which the man who has not capital to buy a farm may still till the soil and have at least a share of the fruits of his toil. In its best manifestation it also gives the tenant competent direction. The idea that it is essentially so repugnant to North American ideals that it can never take root here is not borne out by the fact that in the United States it has long survived in several conspicuous cases—the famous Scully Estate being an important example. It even has a certain logical place in the most democratic society, for it must be admitted that no community of any size yet shows absolutely even business ability among all its members, and the tenant system may be necessary to enable some men to operate farms which

they have the manual skill and industry to work, but not the business skill to manage.

One of its greatest dangers is its tendency under present conditions to pass into the hands of great corporations, a development which is destructive of its greatest social value—the maintenance of close personal contact between a sympathetic landlord and his tenants. Modern conditions, and the ease with which a man can today invest his savings in some security which requires no personal attention incline men to turn away from investments that bring direct personal responsibility, and the corporation method of finance for landed property is often more attractive than the system of direct personal ownership. That might give highly competent direction by skilled managers, but would probably produce a social reaction in the form of vague resentment of tenant against a formless and impersonal landlord.

Corporation landlordism is alien to the present ideals of Western Canada. It will tend to increase unless it is combatted by a class of men who are competent to act as individual landlords and willing to undertake the exacting duties of that calling. Since some landlordism will probably exist in any society which has emerged from the pioneer stage, it seems highly important that there should be such a class available in Western Canada—a class of men who enjoy agriculture as an occupation so much that they are willing to consider personal direction of their estates a compensation that balances the greater ease to be found in investments in corporation securities. Such a class would be of incalculable benefit to the community.

Despite the increase in tenancy, discussion of landlordism is at present academic, since Western Canada

is as a whole committed to democratic ideals of society and should normally continue a country in which the landowner is also the operator of the farm. That system can only be maintained by constant effort. Farms will pass from one owner to another; farm homes will send out a constant stream of boys who turn to various professions and occupations, and who will later in life find themselves heirs to the home of their childhood, with no definite plan as to their use of the property. That condition in other rural areas of North America has, in the phase of depression of agriculture through which we have been passing, ended in either the abandonment of the homestead to fall to ruin, its sale or lease to less able operators, with the same ultimate result, or its conversion into a summer home, a plaything for men tired of the city. We believe that Western Canada is coming to the time when the first generation of settlers will in increasing numbers be ready to step from the stage; the economic position is more favourable than at a similar time in the history of other communities; the relative position of agriculture seems about to improve now that the new lands of the earth have all passed into private hands; its soil is far from the state of exhaustion of that of New England, for example, when the great exodus of farm-bred boys commenced, and the property value of the farms is too high to make their abandonment a logical solution.

What is required to meet the circumstances is a system of education laying more stress on the rural ideals. Men and women must be trained to regard life in the countryside as not a phase of hard work and frugal living from which it is desirable to escape as soon as possible, but as the most alluring of all exist-

ences. That means concentration on teaching the young to find pleasure in nature, and joy in life in open places. It means deliberate cultivation of the spirit which makes the possession of a fine garden, or of a pleasant view, an asset important enough to raise the price of a farm appreciably. It means love of country life and pride in one's own community.

Is Western education moving in that direction? Are movements of organized farmers tending to create pride in agriculture, and a sound faith in the future of rural civilization? Or are the cultural tendencies of the West like those of many other areas too obsessed with urban ideals, too prone to make the children learn to count dollars, as the city child does, as the measure of success? On these questions hinges the future of the West.

For many years we have heard that it was a splendid thing that boys should abandon the bare and sterile hillsides of New England to go out and be great men in other places. In the end industrialism is fading in New England, and the bare hillsides are found to be dotted with some of the most fertile valleys in the world. Newcomers of alien races are today occupying them, and it is not unusual to find in a New England community the son of some family of landowners driving a truck to take to market the produce raised profitably on his ancestral acres by an immigrant who came yesterday.

The time is coming for wider outlooks in Western Canada—for peering a little deeper into the future. The immediate technical problems of how to enable settlers to live on the land seem to be solved, and the next step of how to make that life one of reasonable comfort is at least well in hand. The need of the

moment is not for talk of how the farmer of the West can protect himself against enemies from without, but how he can now build a society which will be proof against disease that may sap it from within.

This is not a matter for the farmer alone. Old England and New England alike today mourn the destruction of a sound rural life. They permitted it because they saw distant new lands with which they could trade, to which they could send the product of their factories, and from which they could be fed more cheaply than from the fields outside their own city walls. Western Canada does not need to do that. As the world now stands, there are no more lands to swamp its agriculture with cheaper foods. It can give its efforts to the creation of sound industrialism, based on a sound agriculture. If that is to be attained, the type of people who are to do it must be made in the schools and universities of the West.

It is time to commence a new era in Western thought, and to consider if we should not here commence the effort to find a new and lasting system of society.

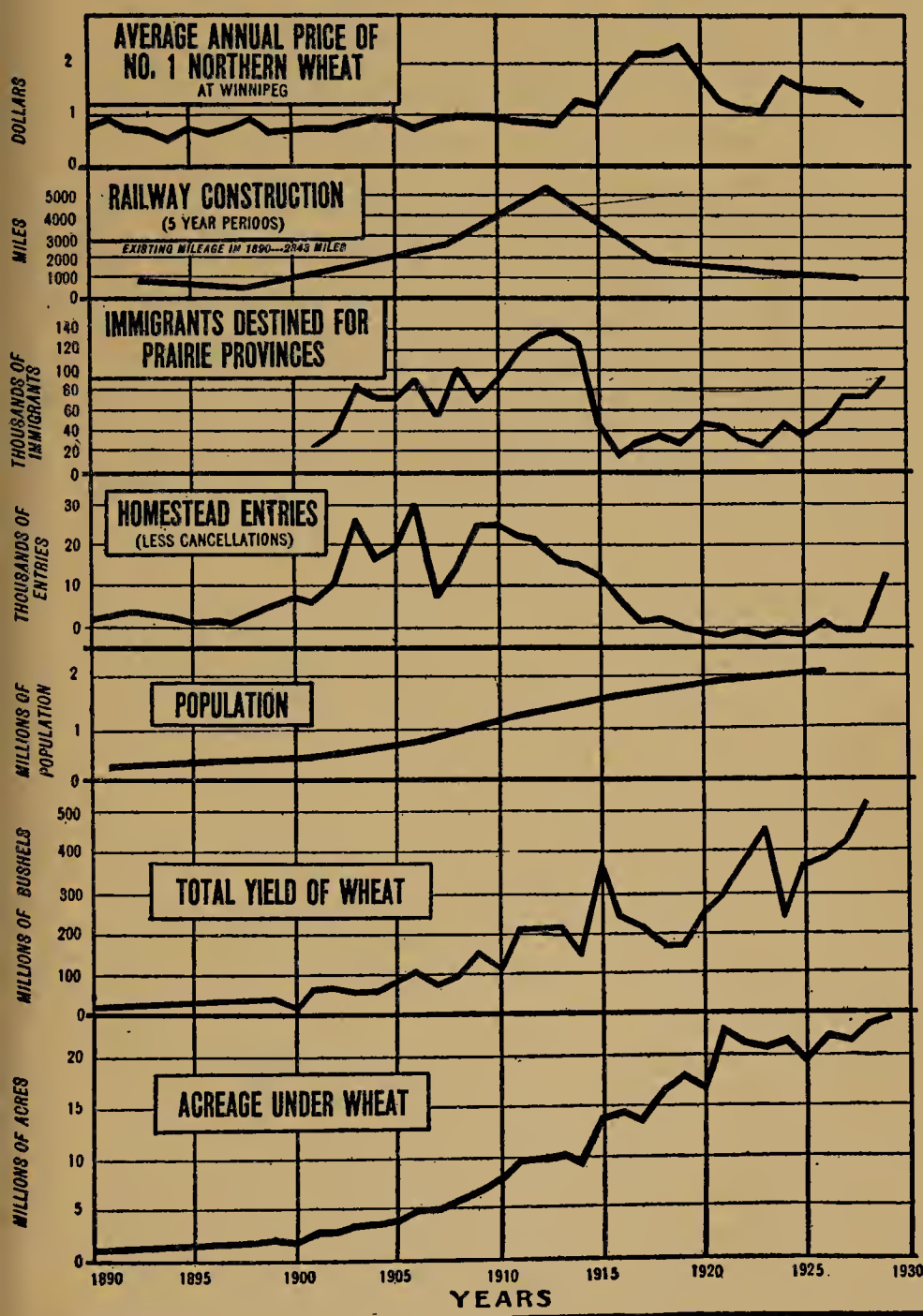
We have stressed the conflict which we see between urban and rural ideals. In older communities the very existence of Western Canada has aided in making urban ideals dominate, and in the temporary downfall of rural civilization. The waves of people from Europe to possess the new cheap lands are done. It is wholly reasonable to forecast that the end of this era, and the commencement of a time when rural and urban ideals shall be combined to make a stable civilization, should be first shown in a determined effort of Western Canada to do more than blindly follow the course of other communities.

Wheat in Western Canada has been a pioneer expe-

dient; it is possible to make it the foundation of a sound and permanent agriculture—which in turn may support a firm structure of society. It is a good crop to raise, but there is a better—men and women. We should grow wheat, not to keep railways running, nor to build up great ports, nor to aid the commerce of the nation, nor yet to feed other countries cheaply. We should grow it to enable us to develop a civilization, and to make a country. It is important to turn it into dollars, but that is not half so vital as to make certain that we use the dollars to make a stable society. The vast stretches of virgin soil are not a mere chance to convert labour into wealth; they are an estate in trust, and on what we do with them depends the future of generations yet unborn.

ECONOMIC CHARTS OF PRAIRIE PROVINCES

1890 TO 1928

SHOWING

WHEAT, POPULATION, IMMIGRATION, HOMESTEAD ENTRIES & RAILWAY CONSTRUCTION